# THE FARMERS' REGISTER.

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EDMUND RUFFIN, EDITOR AND PROPRIETOR.

## ON DAIRY MANAGEMENT.

From the Transactions of the Essex (Mass.) Agricultural Society.

*To J. W. Proctor, esq.—Sir*—Having been unable to attend the meeting of the board of trustees in December, I submit the following considerations relating to the management of dairies.

The first and most essential point to be gained is to procure *good cows*. It costs no more to feed a good cow, than a poor one. And the comparative result of their produce at the close of the year, makes a most essential difference in the profits of the farmer. Suppose one cow to give one quart at a milking, or two quarts per day, more than another, the milk being of equal quality; and this milk to be estimated worth two and a half cents per quart, and this to continue 200 days—here would be a difference of *ten dollars* in the produce of the two cows. This rule applied to a dairy of fifteen cows, would be equal the sum of $150—half as much as the net annual income of a majority of the farmers in the county.

The *quality of the milk* is a consideration not less important than the quantity. Those who never have tried the experiment of setting different cows' milk separate, have very imperfect ideas of their comparative value. I have known some cows that five or six quarts of their milk would raise cream sufficient to make a pound of butter. I believe this was stated to be true of the Oakes cow, from the milk of which was made twenty pounds of butter a week for several successive weeks; and I have heard the same of others. But, ordinarily, it takes ten quarts of milk to yield a pound of butter. It therefore becomes a point of great importance, in selecting cows for the making of butter, to obtain those whose milk is adapted to this purpose.

The *manner of feeding cows* is a point not to be neglected, in the management of a dairy. Good feed not only increases the quantity of the milk, but it improves the quality; and of consequence the butter and cheese produced therefrom are better also. The *kind of food used* is also to be regarded. Every dairy-woman knows that the milk will indicate the kind of food used; therefore those kinds of food which leave the best flavor in the milk should be selected. When cows have been fed on cabbages or on turnips, who has not tasted the peculiarities of these vegetables? When they are fed on Indian meal, on carrots, or on beets,—it is fair to presume that these articles become incorporated with the milk also. I do not presume to say which of these articles is the most valuable to be cultivated for the feeding of cows; though I hope in this age of experiments, with so many inducements as are now held out for the trial, it will not be long before some of our farmers will give us satisfactory information on this subject.

The *manner of milking* also demands attention. Cows should be milked about the same time each day; and they should be milked *quick and clean*. If a portion of their milk is suffered to remain, this will soon diminish the quantity, and the cows will dry up. It is bad policy to trust milking to children, for they usually do it moderately and imperfectly, and more is lost thereby than would pay the best of laborers.

The *place for the setting of the milk*, is also worthy of attention. This should be cool, well ventilated, and exclusively appropriated to this purpose. For if it is permitted to be occupied in part for other purposes, some things will find their way there which will be injurious to the milk. It should also be properly lighted. Cream will rise more favorably in a light than in a dark room, and the quality of it will be better. Therefore a dairy room above ground is preferable to a cellar. The room should be carefully guarded, by the use of wire gauze, or some other substance at the windows, against the approach of insects or intruders of every kind. The milk should be set in pans uncovered; as the cream will not rise so freely when there is a cover over the pans. Care should be taken not to fill the pans full, especially in warm weather, as the cream will rise quicker and better when the milk is spread over a larger surface. The sooner it rises and is removed from the milk the better; and this should always be done before the milk begins to turn sour. When the cream is taken off, it should be kept in tight covered vessels, in cool places, until the churning process; and this should always be before any sourness or mould is discoverable.

Much care should be taken to separate the butter-milk thoroughly from the butter. More depends on this than any other part of the process in making good butter. Unless this is done, it will be impossible to preserve it sweet and good. If our dairy-women would apply double the labor to half the quantity of their butter, and thereby thoroughly remove all particles of butter-milk, this one half would be worth more than the whole in the condition it is usually sent to the market. As this is a matter that interests every farmer, and every lover of good butter, (and who does not love it when it is fair and nice?) I have presumed to forward these remarks. You will use them as you think proper. JOSEPH HOW.

*Methuen, Jan.* 6, 1841.

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*Note.*—What I have said in relation to the working of butter, is to be under-stood in relation to such butter as had the proper previous management. For if the butter comes soft, it may be worked ever so long, and not become hard and good; although it may be improved by working. Butter that comes well will be fit for immediate use with very little working. But if it is to be kept, care should be taken that the buttermilk is throughly removed.

It was my intention to have said something on the feed of cows. But my remarks have already extended so far, I will simply say, that there is no feed on which cows can be kept, that will make better butter, than a first rate pasture; such as

abounds with English grasses. When this supply fails, let the deficiency be made up by green corn-stalks. Farmers will do well to plant some corn extra, for this purpose.

The present winter, I have boiled roots for my cows, such as turnips and sugar beets, to which I add a little Indian meal. This food, when properly prepared and seasoned with salt, is well received by the cows, and improves the flavor, and increases the quantity of their milk. J. H.

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### FISHERY LAWS OF PENNSYLVANIA AND THEIR EFFECTS.

[The law of fishing rights is the same in Virginia as in Pennsylvania, and the following statement is nearly as applicable to the former as to the latter state.—Ed. F. R.]

From the Public Ledger.

*Messrs. Editors*—My attention was attracted by an abstract of the laws regulating fisheries in the Delaware, published in your paper of the 10th instant, and I have been much astonished that public attention has not been called to this subject long before now. I well recollect when the average price of shad was not more than eight dollars per hundred; whereas, for several years last past, it has not been less than twenty; and on inquiry into the cause of this rise, I find it to be a general opinion that the vast extent to which the gilling system is carried on, has produced it. There are said to be a thousand or fifteen hundred drift nets or gilling seines in operation within the concurrent jurisdiction of this state and the state of New Jersey. These being spread in all directions in the river, it is almost impossible for a shad to pass up without coming in contact with some of them, and the same fish may probably be entangled a score of times or more in its progress; and being thus impeded, mutilated, and injured, would instinctively seek some other stream at the next spawning season, or perhaps deposite its ova in the salt water, where it must perish. Hence the scarcity of shad in our river, and the consequent high prices. Such was the case in Connecticut river, until laws were enacted by that state for the suppression of gill nets, and duly enforced, since which the shad have gradually returned, and are now as plenty as before. It is quite evident that a large portion of the shad that strike the gill nets struggle through and extricate themselves; and, indeed, this must be the case, or few if any would reach the upper Delaware; whereas the shore nets or sweeping seines take all they enclose, and remaining so short a time as they do in a fishing position, they give time and space for the passage of the shad; but the gilling nets, remaining many hours together in the water, form a complete barrier, except by a passage through them. The law, however, permits gill-net fishing under certain regulations, which, if observed, would necessarily so far restrict their number as to render them comparatively harmless; and as shore nets are restricted and regulated by law, and, I believe, universally kept within legal requirements, it is truly astonishing that gill-net fishing should be unrestrictedly tolerated, subversive, as it appears to be, of the interests of the community, in driving the shad from our waters, as well as ruinous to the holders of shore fisheries, many of whom have invested their hard earnings in this species of property, on faith of the protection afforded by the laws; and as large a tax is laid on this as on property of any other kind, while the gill nets pay none whatever.

It has been suggested that the laws regulating fisheries are unconstitutional. If so, let them be repealed; but while in force the owners of fisheries are entitled to all their benefits, and transgressors subject to all their penalties, precisely as in any other case whatever. High legal authority,* however, has declared them constitutional, and if sound policy had not dictated them, it is not likely they would have been enacted by the united wisdom of Pennsylvania and New Jersey. I have been credibly informed, however, that the reason why the owners of those fisheries have not enforced the laws against the drift-net men is, that they are in fear of some private injury from them, should they do it. The owners of fisheries generally reside on or near the banks of the river, and the gill nets being frequently in operation all night, and the men generally of the vilest character, they fear to enforce the laws against them, lest their buildings should be set on fire during their slumbers, and themselves and families perish in the flames. It is said that two persons from near Honesdale, in this state, who were floating a raft down the Delaware, in April last, came before a justice of the peace and made oath that they heard a number of drift-net men profanely swear they would take vengeance on the man who would execute the laws against them, and if they could not accomplish it otherwise, they would burn his buildings; which affidavit is now on file in the office of the magistrate. And I also learn from undoubted authority, that a constable, while in the performance of his duty and the execution of his office, a few days ago, was knocked down by some of these gill-net men, while attempting to arrest them, and shamefully beaten and abused, as were also several others who were with him, and but for the timely aid of a number of shore fishermen, who rushed to his assistance, would probably have received still greater injuries, the drift-net men being armed with guns, clubs and stones. This, indeed, exhibits a sadly depraved state of things—an awful delinquency of morals, and a rapid stride towards jacobinism; and certainly calls for the vigilant interference of the civil power. When peaceable, quiet and respectable citizens are absolutely afraid to protect their property, assert their rights, or support the majesty of the law, lest the vengeance of bandits and outlaws should be wreaked upon them, the state of society is truly deplorable. Better live among savages than in a land professedly civilized, where law, order and government are trampled in the dust. A Citizen.

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### TO MAKE NAMES GROW IN FRUIT.

From the Charleston Transcript.

When peaches and nectarines are about half ripe, cover the side exposed to the sun with strips

* Judge Baldwin.

or specs of wax, in any desired shape or form, which hinders the sun from coloring the part covered; and, when the fruit is ripe, and the wax removed, it will be found marked in the manner described.

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## A SPECIMEN OF AGRICULTURAL LEGISLATION.*

From the Kentucky Farmer.

The Virginia legislature, at its late session, passed a law creating a board of agriculture, to consist of eight members, to be appointed triennially by the executive. We note this movement as a specimen of the policy of the times. From a mere reading of the law, one might draw the inference that the legislature of that venerable commonwealth—"the mother of *men*"—the mother of Kentucky—intended to demonstrate to the world that she had private citizens more magnanimous and more patriotic than even her lawgivers; for the law assigns no pay to the members of the "board of agriculture." Verily, if this be magnanimous and patriotic legislation towards the greatest interest of the country, the sons of Jacob, required by the Egyptians to burn bricks without straw, were not so cruelly enslaved as has been represented. The editor of the Farmers' Register, (from which we copy the law below,) is surely guilty of a *sarcasm* when he says by the provisions of this law the existence of the board is "*barely tolerated* by the government, instead of being encouraged, sustained and aided in its course and the pursuit of the designed ends." Really, this act will constitute *the* era of agricultural legislation. We do not doubt, now, that laws for the promotion of agriculture, so long supplicated from our hitherto inexorable law-makers, will be enacted by all the states, and printed and distributed as widely as "American primers" and "spelling books." Nay, we should hardly marvel, henceforth, to see crops growing, upon lands never ploughed, from seed never sown. The long search of ages is terminated! The philosopher's stone, from its dark, deep hiding place, is brought to light; and its discovery will be the glory of this age. Man, in future, may fatten and grow strong without bread; his sinews, unrelaxed by toil, will become elastic by straining. Kentucky now, whose legislature we have often and earnestly implored to do something in behalf of agriculture, worthy of her name, her character, and her interest, will no longer hesitate to take that interest under consideration and protection. It is true, committees have sometimes proposed, for the consideration of the friends of agriculture, acts not unlike this of Virginia; but whether from fear of the tremendous consequences of such legislation, or other motives, (a little bird whispers, *dread of merited ridicule*,) they have not been adopted, we are not satisfactorily advised. Probably a precedent was desirable, drawn from the wiser practice of older governments. If this be the true conjecture, Kentucky may no longer delay imitating the example of Virginia. She proved her descent, as a daughter of the Old Dominion, when her politicians proposed laws for the encouragement of agriculture, having no provision to render their execution effectual; she will manifest only a dutiful respect, by copying the statute of her mother.

But this is a subject too serious for satire; even if we had no fears of getting knocked on the head by our friend Ruffin for impertinently meddling with the policy of Virginia, and possibly trampling on state rights, for which we profess a due regard. Praying your mercy, then, brother Ruffin, we beg leave to add some remarks as applicable to Kentucky and the other states as to Virginia.

What *can* be the reason that the legislation of this country has never regarded properly the agricultural interest? Why can nothing be done for its encouragement and improvement? How is it that, in this republican government, the farmers, holding the political power, and their interests supporting all others, whenever they seek from their agent, the government, even a small share of that revenue which they *chiefly contribute*, to effect objects of importance to the whole community—but yet too great for individual accomplishment—how is it that they are for ever either insulted by a seeming but ineffective acquiesence or repulsed by an absolute denial? There is no subordinate interest of the country which has not, times without number, received the fostering care, the encouragement and support of legislation. Agriculture only, the great foundation which supports the prosperity of the country and nourishes into life all the other arts, has been regarded by the government which it chiefly maintains, as a stepchild. When agriculture has begged, implored sums, far less than have been lavishly given separately to less important interests, they have been denied. She has sought aid for the execution of objects by which all interests would be promoted; for such is her direct and incidental connexion with all the interests of the country, that a direct benefit to *her* could scarcely be less a benefit to them. True, she has enjoyed incidental benefits from favors granted directly to other interests; but that is only because *their existence* depends upon her prosperity, as the healthy action of all the organs of the body depends upon the vigor of the heart which propels the life blood into every ramification of the system. Now here we see, in the preamble to this Virginia law, the lawgiver's confession of the great importance of agriculture, of the duty of government to encourage and foster it, and of the utility of organized labor under legislative sanction, to promote it; and the enacting sections prescribe duties to be performed by a board of agriculture, more laborious than those assigned to the executive department of the government, and which, properly executed, would prove not less promotive of the general prosperity. The board are required to report annually to the legislature a general view of the agriculture of the state—the business of a commissioner of general survey; they are to report the nature and quantity of agricultural pro-

* We earnestly wish that these remarks of Mr. Stevenson, the editor of the Kentucky Farmer, could be read by every member of the legislature of Virginia. Never was sarcasm more just than this; nor more correctly applied, than to this wretched abortion, which is the first-born and sole measure of Virginian legislation, for the aid or improvement of agriculture.—Ed. F. R.

ducts—the business of a statistical commissioner; they are to collect and digest such facts in relation to the improvement and cultivation of the soil and the best modes of preparing its various products for their appropriate uses as they may think would afford useful information to the agricultural community—the business of statistic collectors, agricultural chemists, practical farmers, manufacturers and mechanics, and withal men of profound judgment in these branches of knowledge and art; they are to report the relative foreign and domestic encouragement given to the various products of agriculture and to suggest such measures to the legislature as may be necessary to develope the resources and promote the general interests of agriculture—the business of merchants, political economists, tariffites, free-tradeites and statesmen. Now what, gentle reader, do you suppose the legislature of Virginia offers in compensation for the performance of these vast and important labors? A million annually? For surely, well performed, they would be worth that sum. O no; important as the preamble rates them; the enacting clauses of the law do not value them a farthing! Well now this is just of a piece with the whole course of American legislation on the subject of direct encouragement of agricultural improvement—for ever making paper concessions—never effectively doing any thing. Massachusetts and perhaps New York should be excepted from this sweeping denunciation; they have certainly done *a little*—and *but* a very little—for this great interest.

The labors designed by government to promote the agricultural interests, should be assigned a bureau, if not an independent department, with executive or ministerial powers adequate to the end.

Now to conclude—for we have extended our remarks further than intended—the primary source of all the shameful neglect of agriculture by government, lies in the supineness of the people, the farmers themselves. Until they cease lending themselves to the blind and subservient idolatry of party; till they, instead of tying themselves to the tails of the paltry demagogues of politics, demand *action* from their political agents in the execution of trusts solemnly delegated for the protection of *their interests*, they may still expect a kick whenever they present themselves at the door of legislation asking any means for their promotion. Let the farmer appreciate more highly his political rights and his professional dignity and interests; let *him* be the master of his servant, not the slave of his bondman; let him understand his own interests and urge his rights as becomes one endowed with wisdom and judgment and will; and we shall see the spirit of justice and liberality to neglected, abused, injured agriculture awakened in the halls of legislation. All depends on the farmers themselves—they may pay if they choose, all the revenues, and permit them to be expended in any thing but promoting their direct interests—even in insulting their interests—they may do this; or they may reform the legislation of the country. They have a power which they may exert for their own weal or woe; let them choose their own policy.

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## DESULTORY OBSERVATIONS ON THE BANKING SYSTEM OF THIS COUNTRY, AND THE EFFECTS OF ITS DIFFERENT MODES OF OPERATION. ADDRESSED TO THE CONSIDERATION OF THE AGRICULTURAL INTEREST.

Continued from page 286.

### *XV. The loss and gain of banking to the banking interest, and to the whole community, compared. Results of the depreciated currency of solvent banks.*

In the last number, the course of the banking system of this country was traced from the highest possible state of prosperity, and of the greatest safety, to its subsequent and inevitable result of suspension of specie payments. Now let us see what has been, and will be, lost by the community, for the purpose of furnishing gain to the banking and borrowing interest, by the issue of paper money, and for maintaining unjust profits by means of suspension of payments.

As depreciation of the paper circulation, compared to that of specie, (which is the only standard rate of value,) is the necessary precursor and immediate cause of the banks' stopping payments, so that stoppage becomes the cause of still greater depreciation of the dishonored paper money. The bank notes that were but a half of one per cent. less in market value than specie, (while the banks paid the amounts promised by the notes,) the day before the banks stopped payment, would fall 5 or perhaps 10 per cent. the day after the stoppage. The degree of depreciation would vary with circumstances—such as the expected nearer or remoter time of resuming payments, or the greater or less excess of paper issued, or the degree of public confidence in the ultimate solvency of the banks. In the suspension of 1837, the notes of the Virginia banks fell, as soon as the suspension was declared, 10 per cent. below specie in market price, and afterwards declined still more. At this time, they are only 4 per cent.; and in the suspension of 1813, city bank notes, (that is, those in best credit,) were 20 per cent. and country bank notes from 20 to 50 per cent. below the value of specie. Yet all those were banks reputed solvent—or believed to have the means of ultimately paying all their notes and other debts. If supposed to be insolvent, as many other banks have been, and now are, the depreciation would have been much greater. The fluctuation alone of the rate of depreciation adds very much to the tax of its amount; thus, if sometimes at 4 per cent., then 20, and then but 4 again, and next 10, these changes would be much worse for the suffering and ignorant community (though not perhaps for better informed gambling stock-jobbers and speculators.) than a steady average depreciation of 10 or 12 per cent. This truth is so obvious as to need no proof. But as it is impossible to exhibit truly the evils of a depreciated currency continually changing in value, let us suppose to exist, and observe the effects of, the lesser degree of evil, presented by a steady and uniform rate of depreciation. And, from the estimation of this lesser evil, the reader may afterwards infer how much more it would be increased by continual

alterations of the degree of depreciation, operating to repeat the first and general ill effect on the value of labor and profits at every new fluctuation, whether in rising or falling.

Let us suppose the *average* rate of depreciation of bank paper, during a stoppage of payments, to be 10 per cent. below gold and silver. Before the suspension of payments was announced, or before the "run" upon the banks had commenced, of course there could have been but little specie in circulation; for our supposition was of a case where banks had issued as much paper as circulation could absorb while bank notes remained payable in specie on demand. As soon as the suspension is declared, of course all the little specie before in circulation disappears, and the country is without any currency whatever, except the irredeemable, discredited, and depreciated bank notes, with which circulation is filled. It is then not a matter of choice whether such money shall be received and paid, and thus continue current or not. *There is no other money*—and of course every body is obliged to use it as freely as before; and such would be the case even if the depreciation were five times as great. Not only are individuals thus compelled to take the depreciated paper, but even the government; for the government, whose business it is to provide or indicate a currency, had left this important attribute of sovereignty to be usurped by the banks, and therefore the government is in the remarkable and most feeble and helpless condition, of being without any solid, proper, or legal currency whatever. Legislation perhaps has not yet cheated all creditors, as regularly afterwards follows bank suspensions in Virginia, by making the depreciated paper money virtually a legal tender—and thus violating the constitution of government, as well as private rights. But even in advance of this policy, (of "relief laws," "stay laws," &c.,) *public opinion* alone is powerful enough to forbid any creditor exacting his debts in specie, or otherwise charging to the debtor the amount of actual depreciation. Then, every man to whom money is owing for his labor, or the previous sale of his property, is paid actually but 90 dollars for every 100 due to him; and thus, at the first dash, every debt due throughout the whole country is taxed and reduced 10 per cent.; and that amount is transferred from the possession of the creditor class, to the debtor class. This amount of property thus forcibly transferred, would be an enormous public evil, (independent of its wrongfulness,) greater than all possible public benefits previously derived from the banking system. But this is not all. Prices in general, so far as they are matter of mutual agreement, it is true, will in time be accommodated to the new depreciated value of the currency. But this cannot be done at once; and while gradually reaching that point, the benefits of the changes will always fall to the well-informed and cunning traders or stock-jobbers, and money brokers, and the losses will fall on those who earn their living by selling their labor, or the products of their labor. But very many kinds of prices cannot be changed, even gradually, from the nominal to the real value of the depreciated currency. All who live on fixed salaries, or receive prices fixed by previous contract, must continue to lose one-tenth of their income, for the profit (to the banks) of the fraud of stopping payments. And indeed many other prices, especially of various kinds of labor, are so fixed by custom, though not by law, as to be very slow in changing to suit the new value of money, and of course are so taxed in proportion to the slowness of their change. The prices of the work of bricklayers and plasterers, of house-painters and of many others, are at certain rates according to the precise measurement of the work executed. Now, to make prices fair in these cases, they should rise 10 per cent. *in the next hour* after the bank paper and only currency of the country had sunk in value 10 per cent. Yet all these mechanics, and also those who employ them, know well that no such sudden and proportional rise of prices for their labor would take place. And in time, all other prices which are not fixed, rise in proportion to the depreciation of money; and after millions of value being transferred from the rightful owners to other persons in making the change, it might be, if the rate of depreciation were really fixed and steady, that prices would be again fairly rated upon labor and property, by every thing being charged 10 per cent. higher than at the former specie prices. But, in practical operation, before this new and fair graduation could be reached, the ground would have been again shifted by a new fluctuation of price, and a different rate of depreciation of the currency; and every fluctuation, whether by increasing or decreasing the previous depreciation, would cause more evil than before, by again disordering prices, and transferring property wrongfully; and it should be observed that the transfers of value would not be directed by mere chance, but would generally be from the most ignorant to the most artful; and that the greatest gainers by this game of speculation would be the same banking and stock-jobbing class, by whose agency and for whose benefit the first great fraud and the great consequent evils were produced. During a state of fluctuating depreciation of currency, the prices of labor and of property are continually pursuing the steps of depreciation, but are always far behind, and never can overtake them.

But the increase of nominal prices of property does not stop at the proper mark required by a fixed and permanent depreciation of money; and this is another great evil. The great mass of the community will never be able at first to understand the true cause of the rise of nominal prices; and what is in truth merely depreciation of money, is believed to be an increased and still increasing value of land and other property, and even of general and growing prosperity. Therefore this mistaken and foolish view of the matter causes property, after it has reached the 10 per cent. of nominal appreciation, suited to 10 per cent. depreciation of the paper money, to continue to rise still higher, merely because of the belief that the first rise was real, instead of nominal. And the more rapid, and the higher the advance in price, and the more baseless the appreciation, the stronger will be the general confidence in the "rise of property," and the more therefore will it continue to rise. But all this delusion must come to an end, soon or late, either by a return to specie payments and specie prices, or by the people coming to a proper understanding of the cause of the rise of prices. And both

in the rise and the subsequent fall of prices, there must be an enormous amount of value transferred without equivalent, from the rightful proprietors to other persons. But pecuniary losses, numerous and great as they would be, and the entire ruin of thousands of the honest and laborious classes of society, to enrich the "knowing ones," would not be so injurious to the country as the moral evils which will as certainly follow mad speculation, as the spirit of speculation will previously be the effect of such abuses of banking, and depreciation of bank paper. Not one of the community would entirely escape the contamination. So many would seem to be growing rich by the rise of property and fortunate purchases, that the rewards of labor and of ordinary business would be deemed poor and contemptible in comparison. All would be in haste to get rich, and would become speculators for that purpose; and when awakened from the delusive dream of wealth to be acquired without labor, they would be far less fitted than before to return to labor, and to submit to the then much increased privations of poverty.

We leave to every reader to estimate for himself the amount of losses to be suffered by the whole community, both in the immediate and remote effect of a depreciated and exclusive paper currency. The highest and the lowest estimates of loss may vary by many millions; but the lowest rate of this one item of the cost of the system, fixed by any unprejudiced and judicious calculator, would exceed all its possible benefit to the banking interest, as well as to the public.

*XVI. The further operation, by insolvent banks.*

But, enormous as are the evils and losses, to the public, which have been considered, they have been only those of what are deemed *solvent*, and such as *may* prove *ultimately responsible* banks; of such as, by the long continued exercise of their exclusive privileges, and obtaining the enormous profits thence derived, are enabled to repair previous losses, and even renew entirely squandered capitals, and thus, in course of time, to return to specie payments, and to the discharge of all other then *current* obligations and legal demands. We have not noticed, directly, the far worse results, which have been so extensively and ruinously felt in a large portion of the United States, of banks avowedly or undisguisedly bankrupt and insolvent, and by which the public, as note-holders and creditors, suffer all the continually increasing steps of depreciation, down to the entire extinction of all the credit, as well as all the value of the notes. In Virginia, as yet, such evils have not been experienced, merely because the government has always sustained the banks in their greatest straits, against their creditors, and in defiance of right and justice; and has thus enabled the banks to recover from disasters and dangers, which would have produced bankruptcy without that efficient support. But numerous banks, elsewhere, have become avowedly bankrupt and insolvent, and the holders of their notes have not only been cheated in gradual depreciation, but also in the final extinction of all value of their whole amount; and by which greater extremes, losses have been suffered by the plundered country to the amount of hundreds of millions, over and above all such as we have had under consideration in the foregoing remarks. For, whenever such complete results of fraudulent banking occur, they indicate always the greatest possible previous expansion of paper currency, and its necessary effects in altering the standard of value, and transferring the possession of property from the rightful owners to other hands; and therefore the loss of all the nominal amount of the paper circulation, though complete, is not *in magnitude* a tenth part of the previous losses by real depreciation of money, fancied appreciation of property, general banking speculation carried to the utmost extremes, and the consequent evils to all concerned, except to a few artful or lucky players at the great faro table of banking, and other speculation, in which the interests, or profits of every individual are staked, by compulsion of law and other circumstances, if not by the choice of the possessor.

*XVII. Recapitulation of the particular benefits and evil effects of solvent banks; and the parties to whose share they respectively fall.*

And now let us re-state concisely, and place in one view, the several points of gain and of loss, and both the benefits and the evils, caused by the banking system of this country.

The benefits are—

1st.—The most important gain, and which is exclusively for the profit of the banking or stockholding interest, consists in the creating of paper currency, to an amount much greater than their capitals or specie, and, by lending it out, drawing interest upon all the excess of issue beyond their capital so vested; which profit will be *less* according to the moderation, prudence, and honesty of the banks—or *greater*, according to the deficiency of all these qualities.

2d.—The benefit to the class of traders without capital, and other needy borrowers, who can, from the carelessness, and indulgent disposition, or interested favoritism, of bank directors, obtain loans which would be difficult or impossible for persons of such doubtful responsibility to obtain from any more cautious individuals, managing their own private property. These adventurers, if successful in their speculations, and lucky in the risks of trade, make fortunes out of nothing; if unlucky, they become bankrupt, and are not then much worse off than when commencing operations; and their creditors or sureties, and not unfrequently the banks, have to bear the loss of the debts thus incurred.

3d.—A benefit to the public, or general interest, is the economy of dispensing with (and exporting, to exchange for commodities,) the costly currency, gold and silver, and using instead the cheaper substitute of paper currency.

4th.—Another advantage to the community is the undoubted greater convenience of paper over metallic money, for keeping, handling, and especially for transmission, or distant transfers. This latter convenience, however, for large sums especially, is now usually and still better attained by means of bills of exchange than by the use of bank notes; and other means might be used, in addition, and which will be adverted to again hereafter, to secure this great convenience, without resorting to the circulation of ordinary bank pa-

per, or the usual operations of banks of issue and circulation.

The evils of the system, to be as concisely recapitulated, are—

1st.—The substitution and sending abroad the previous metallic currency, of intrinsic, solid, and nearly invariable value, and which nothing can prevent a country's obtaining in sufficient quantities, if it produces commodities to sell abroad; or make it lose, after having obtained such a currency, except this policy of substituting it by a paper, or other less valuable currency. So far, the paper currency may not be greatly redundant, nor sensibly depreciated; and the banking operations honest and prudent, except so far as the system is necessarily dishonest in principle and unsafe in practice. And yet, external and unavoidable causes may, and indeed must, sometimes bring discredit on the paper currency, and consequently suspension of specie payments by the banks.

2d.—To the country, and especially to its government, the being suddenly brought by general bank suspension, or stoppage of payments, to the wretched and feeble condition of being entirely *without money* for domestic trade, taxes, or to carry on war—or any other than a discredited, depreciated, and altogether unsound currency, which by the constitution, and also by laws still in force, is *not* legal money; and there is at once a general and total inability to comply with any pecuniary obligations, and to pay any debts, at the very time when the interest and the necessities of creditors (produced by the general shock to credit,) require most strongly the speedy compliance with such obligations.

3d.—To individual creditors; for this awful conflict of the rights of creditors, and the refusal of banks to pay, and the inability of other debtors, is soon ended by the interposition of law, which (though in opposition to the constitution and to justice and to honesty,) legalizes the depreciated paper currency, and thereby confiscates as much of every existing debt and contract, as is equal to the measure of depreciation of the paper currency, then and thereafter.

4th.—To proprietors of land and all other property, in the change of its market price, and apparent value, caused first by the depreciation of the currency, and then by the spirit of speculation engendered by that depreciation, and the false belief that the value of property had risen, and continued rising, instead of knowing the truth, that the currency had fallen, and was still falling in value. And this great evil, tends to convert the whole community to sellers and buyers, and speculators, to the general and great injury of nearly all the individuals engaged. The fluctuations and successive changes of the rate of depreciation, all serve to magnify still more the first and general evils of this kind.

5th.—To the moral condition of society, disordered and unhinged by the introduction and extensive diffusion of a spirit of speculation, and love of gambling adventure, prompted by numerous examples of great fortunes thus suddenly acquired; and the consequent neglect of, and disgust for the pursuits of laborious and patient industry and frugality, formerly the only roads to wealth and respectability. Thus, even when the banking bubble has burst, and men are no longer intoxicated and deluded by the offered sources of wealth without labor, like other suddenly sobered drunkards they are left in a state of prostration both of body and mind, and unfitted to return to their previous habits of judicious thinking and acting.

And these, and many more minor but yet important items, constitute the frightful price that a people must pay for the few real benefits and conveniences connected with the fraudulent banking system; and which few benefits may nearly, if not quite, as well be secured by a banking system which would be honest in principle, safe in operation, and from which all the great evils and dangers of banks of circulation would be effectually excluded. Such a system, or at least some secure steps of approach to it, will be hereafter proposed. But, inasmuch as a good system will be reached only by carefully avoiding the known abuses of the existing bad banking system, it is proper first to mention some other evils invariably attendant on and connected with the ordinary procedure of banks, but which in fact are not at all necessary to the best working of even the previous bad system, as designed by law. We shall very concisely refer to these several minor abuses, which are too notorious to require proof, either of their existence, or their evil effect.

### *XVIII. Abuses in the selection, and official influence, of bank directors.*

The persons who are always the most zealous and active to obtain the enactment of banking privileges, and the greatest possible extension of banking operations—who assume to monopolize all the practical and useful knowledge on the subject that is extant—who are the most influential and successful in spreading delusion in regard to banking—these persons are not actuated by the public and general interests which belong to all citizens, nor by even the peculiar interests of capitalists who seek to make profitable investments; but they belong to, and indeed may be said to constitute the great *borrowing interest*, or class of merchants and dealers who, being either without capital, or but very insufficiently provided, are anxious for the establishment, in any manner whatever, and without regard to other interests than their own, of new and more available sources of loans to themselves, to enable them to carry on their unsubstantial and hazardous business and speculations. This class of people, in the general, see nothing whatever in the banking system, and learn and care for nothing in regard to it, but as it offers means for obtaining loans for themselves; and the greater the abuses of the system in its subsequent procedure, the more it will be lauded by this class, provided these abuses tend (as they certainly will,) to furnish them with larger loans, and longer times for payment.

But the worst part of this evil is yet to come. When banks are chartered and put in operation, it is out of this very class of borrowers that the boards of directors are always principally constituted; and who, even if not always the most numerous, are sure to be the most active and influential members of the directory of every bank. If there should, perchance, be one or two other directors of a board, having no connexion with trade, and who are actuated by no other than the common and public interest, they are ready to ad-

mit their want of acquaintance with practical business matters of trade, and of banking, and to follow the guidance of their fellow members who assume to be so much better informed. If a large stockholder and mere capitalist has a seat at the board, he is still the more ready to yield to the others, because all their objects of expanded circulation and extended loans, which the others so much desire, will add so much the more to the immediate profits of the stock. And thus the directors of the borrowing class will do all the business, and direct all the policy of the banks; and most assiduously will they attend to the performance of these nominally *gratuitous*, but really very *highly paid services*. There is no office of honor or profit in our country, of which the duties are so strictly and regularly performed as that of a bank director—which brings no pay, and certainly no honor. Yet who ever heard of a board of bank directors failing to make their stated meetings—or failing to go through the regular business of lending out to applicants the fund for discounts, and of which amount the directors can take a very large and undue share for their own use, or for that of other persons whom they desire to serve.

Now we mean to attach no stigma to the individuals who fill these offices in Virginia, and wherever else that banks have not acted *worse* than in Virginia. Most, if not all, of these individuals are of respectable, and many of them of very high standing in society. Few of them would permit any debt to be made by their favored friends, that they did not *believe* to be secure. Most of them would avoid, as they would death, any individual act, for their individual gain, which they and the world would deem dishonorable; and they would think themselves disgraced for ever, and deservedly, if guilty, individually, and for their own private and exclusive gain, of any such acts of duplicity, bad faith, falsehood and fraud, as they readily advocate and maintain in the action of the banks they govern. But these individuals, however respectable and virtuous as individuals, are, as bank directors, acting for their own interest disguised under the plausible and always delusive semblance of public interest; and tempted and urged as they are—and seeing things through a false medium—supported in wrong measures by the most noisy and busy part of the public, and opposed by the same, if indicating any intention of doing right—it would be a matter of astonishment if such bank directors were to act differently from their usual course. They would possess more virtue and wisdom than belong to ordinary men, if they did not serve their own interests as borrowers, when they thus had persuaded themselves that to do so was required by the public interests.

These remarks apply to such general measures as making excessive and unjustifiable issues of paper money, stopping payment, and using means to still more deceive the public, and command its misplaced confidence, by professing to pay specie promptly and fully, when it is not done truly or to any useful extent; or promising to meet that and other obligations at future times, when they have no expectation of its being done. But there are sundry other acts, of frequent occurrence, in which nothing but private and individual interest can be supposed to induce the movements of particular directors. These are, the partial favor shown in making discounts, or continuing standing "accommodation" loans, to themselves, their relatives, or their business connexions. And still worse, of profiting by their official influence to obtain large sums, on sudden calls for speculation, by "over-checking," (that is, checking for and drawing as if from deposites, when they have no money deposited in bank,) and of using these resources for the purpose of practising indirect and extortionate usury upon persons from whom proper and legal banking facilities are withheld, perhaps by the votes and influence of these same directors. But these *worst* cases of official treachery and individual extortion, though they have been common enough elsewhere, we trust have not yet served to make still more black the banking operations of Virginia. Both here as well as elsewhere, however, there is ample opportunity for bank directors to abuse their trust; and to a very blamable extent many of them here, as well as elsewhere, have profited by their opportunities.

Another great abuse in the constitution of the directories of banks is in the *manner* of the appointment of the members. About half the members of each board are *nominally* appointed by the votes of the stockholders, and the other members by the executive branch of the goverment of Virginia. But *in truth* the appointments are almost always made for each bank by the unseen and secret recommendation of the president, or some one officer of that bank, or at most by the combined influence of a few secret advisers, of those who already hold and exercise the power of the bank. The governor of the state, of course, can know nothing as to the peculiar qualifications of, or objections to, men for these places for every bank, and in every town in Virginia; and he must necessarily rely upon the recommendations of the most prominent men of each bank. As to the election by stockholders, there is in that even still less chance for free and uninfluenced appointments. Most stockholders leave the business of the general meetings to be managed by others—and those who act at all, generally act by proxy—and, until recently, the president of each bank held almost every proxy. The stockholders who actually attend are residents, and generally of the *borrowing class*, and therefore much under the influence of the man, whoever he may be, who has most influence in giving "accommodation" to borrowers. Therefore, it comes to this, that directors are generally the mere secret nominees of each other, or of a single more influential member of their board, or officer of the bank. Hence it is not strange that one of the strongest claims which can be presented for the appointment to the office of a bank director, and the qualification which a director most generally possesses, is that *the individual needs to borrow a great deal of money*, and therefore that a seat at the board will be *particularly convenient to his private interest*.

### *XIX. Abuse of banks acting as exchange brokers.*

Another great and shameful abuse by the banks, and altogether an illegitimate and unnecessary branch of their business, is their dealing in exchange for profit. It is altogether false that this is necessary for the convenience of the public. The system of bills of exchange was in operation, and its benefits for transferring funds fully

experienced, centuries before banks of circulation were established. The banks buy from individual traders drafts for money due to these individuals in distant places; and, by a course of indirect usury, derive from this a large portion of their profits, especially during times of suspension of payments, and the greatest discredit of their own notes. Now if the banks did not procure these drafts from individuals, these first holders, or other private dealers in exchange who would purchase them, would serve the public just as well, and as cheaply as the banks do, in selling drafts to those who required them; and the banks would then be deprived of the temptation which exists at present, and which is continually and willingly yielded to by them, to derive a profit from the discrediting of their own notes, and which profit is increased in proportion to the degree of the depreciation—and which depreciation is caused, and increased, solely by the voluntary act of the banks in refusing to pay their notes. Now here is existing, and in continued operation, a part of a general system of banking, by which the profit of the bank is increased in direct proportion to the extent of its violation of its own obligations, of truth, of honesty, and according to the measure of degradation of its reputation for solvency, in addition to all these other grounds for distrust. And these and all other proceedings of the banks are conducted by directors who, as individuals, have a further interest (besides their more general interest as stockholders,) in having the business of the bank as much expanded, and therefore as unsafe as possible, and its circulation and its credit as unsubstantial. How is it then possible to expect to obtain even the little good in results which the present banking system is capable of yielding, when the interests of both the corporation and its directors are deeply and directly concerned in producing the worst possible results? The working of such means cannot but lead to ends as iniquitous and destructive of right, and of public interests, as are shown in the present condition of the banks and the country.

It may be useful to show, in detail, the practical operation of a bank's dealing in exchange; and, for illustration, we will take one of the hundreds of real cases, such as are of every day's occurrence. In Richmond, and still more in Petersburg, the manufacturing of tobacco is one of the largest and most profitable branches of business. The manufactured tobacco is sent to the northern cities, and principally to New York, to be sold; and, as soon as sold, the consignee in New York authorizes the manufacturer here to draw on him at 4 months' time. That is, the manufacturer's money will be paid in 4 months in New York, to his consignee or agent there, and of course he will have so much of funds in New York, either to bring home in specie, or to be otherwise disposed of. But other persons here will owe money in New York, and have to pay it at or about that time; and therefore it will be more convenient and profitable to both parties, that the tobacco manufacturer, instead of bringing home his money, should sell his draft for it to some person who has to pay money at that time in New York. This prevents the necessity of a double transmission of money; and this beneficial operation is what is called the selling and buying of a bill of exchange; and the whole operation, carried on by any one who makes it a business, is called dealing in exchange.

The present difference of price between the notes of the banks of Virginia and New York funds, in Petersburg, is 5 per cent.; that difference being the measure of depreciation of Virginia notes, at home, on account of their being irredeemable; while the New York banks pay specie, and therefore their notes at home are at par with specie. It would follow, that a draft on New York for $100, having four months to run before being due, would be worth at maturity, (depreciation and the price of exchange remaining the same,) $105; and deducting 2 per cent. interest (at 6 per cent. per annum) for the 4 months which the draft has to wait for payment, it is worth $103 (very nearly) when sold. And this is precisely what the buyer of the draft could afford to pay for it in cash.

The tobacco manufacturers who thus obtain New York funds for all their sales, and are authorized to draw for them at 4 months, have generally too little capital to permit them to wait that time for their returns. They therefore would prefer to sell their drafts for the premium they are worth, after discounting the interest for the time before being due. Now individuals would buy their drafts, at maturity, or previously, if on credit to that time, and allow the full premium; but individuals, dependent on banks for capital, cannot generally advance the cash. The proper course then would be, for A, the tobacco manufacturer, to sell his 4 months' draft for $100, on its face, to B, a retailer who owes money or wishes to make purchases in New York, for $105, for which B executes his negotiable note, to be paid at 4 months, when the draft will be worth that amount, supposing the price of exchange to remain the same. Then the bank should discount B's note, and all three parties will be served. A will get cash for his draft, and also the fair value of its greater value in exchange. B will obtain the New York funds, and on a credit. The bank will discount the well secured note of B, still better secured by the endorsement of A, and receive its fair and legal profit, (and all a bank should receive,) in the interest of the note. But the banks want to make also the much heavier profit of exchange brokers, and indirect usurers--and it is alleged that they will not discount for a tobacco manufacturer either as above, or on any other business paper, unless he will sell to the bank his drafts, and that at a price considerably below the real value. Thus, that he may be enabled to get his notes discounted, though paying for the benefit the fair rate of interest, he must, per force, also sell his four-months' drafts "at face," or their nominal amount, to the bank, which the bank sells afterwards, at maturity, to some other individual at 5 per cent. premium. Thus the bank makes its fair and regular profit, in the discount for the time, and therefore has by the transaction granted no favor to the draft-holder; or the two parties have been reciprocally and equally benefitted—the individual getting cash advanced, and the bank retaining the interest, which is the very business which was the main object of its institution, and main source of its legitimate profits. And this being the case, the time which the draft has to run causes no abatement of its value to the bank, for the delay of payment is compensated in the interest retained. Then the value of the draft to

the bank should be rated as cash, and the price of exchange counted in like manner. Yet the regular difference made (at present prices) between what the banks pay and sell such exchange for, (buying "at face" and selling at 5,) after deducting 2 per cent. for the interest, gives a clear gain on the exchange of 3 per cent. on the amount; which is so much of indirect usury made in addition to their legal interest, and which addition makes the interest (or whole profit) to the bank, 5 per cent. on 4 months, or 15 per cent. per annum.

Now it is true, that if, when the 4 months have expired, the price of exchange on New York should have fallen below the present rate of 5 per cent., then the bank will make so much the less by its indirect usury. If, on the other hand, the price should rise in the 4 months, the profit will be the greater in proportion to the advance of price, and of premium which the bank will ask, and sell for. And, as the advanced price of exchange is graduated strictly according to the measure of the rate of depreciation of the notes of the banks of Virginia, and that depreciation again is caused by their stoppage of payment, and graduated by the consequent discredit of their paper money, it is plain enough that the banks hold the power to make the depreciation greater or less, as it pleases them, and, of course, the price of exchange; and that, if they know their own intentions, and can foresee their own course for even a few months ahead, they must also know in advance what their profit on every such transaction will certainly be, and whether they cannot even increase its rate.

But putting aside what is alleged against the banks because of these transactions, and of their disposition, and exerting their power, to monopolize, and to practise extortion upon the necessities of the borrower, and the indirect and heavy usury gained by them in the purchase and sale—we desire to draw the reader's attention especially to the still worse feature of the business. This is, that *the banks have a direct interest in discrediting their own currency*—because the lower it sinks the more profit they will make by dealing in exchange—which is but selling the product of their depreciation, and profiting in proportion to its extent and degree. If then, the great object and end of the banking policy of this country had been to corrupt and render dishonest both the banks and those who direct and control their operations, the means could not have been better adapted to the end than they are now.

### *XX. Remedies for the evils of the banking system. Partial reform, in removing superinduced and unnecessary abuses.*

The next and most important matter of inquiry is, whether there is no possible and sure means for remedying, or at least mitigating the evils of the banking system; or whether the actual absence of all effort for this purpose, by all persons having power or influence, is indeed indicative that there is no hope for either relief or amendment. We will presume to propose measures of reform, which, if not the most efficient or judicious, would, if used to even the smallest extent, certainly operate to remove something of the amount of evil; and which might be adopted to just such extent as the power of bank influence and other circumstances might permit.

Reform of the banking system might be either partial and limited, or thorough and complete. A most important, though but limited reformation, might be produced by simply abating the worst practical abuses of the system—beginning with the most manifest and least excusable, and proceeding thence to those measures about which there might possibly be some doubt as to their being partially good, or of unmixed evil tendency, in the opinions of intelligent and disinterested judges. We will name such parts of the practice and policy as might be removed without touching the designed powers and operation of the system—and which, if removed, would leave the system comparatively pure, though still, as we believe, of dangerous tendency, and much too powerful in evil effects.

Such a limited reform would be produced, of greater or less extent and value, in proportion as more or fewer of the following changes were made:

1. An unmixed benefit would be produced by prohibiting to banks the dealing in exchange, or at least the selling exchange at more than such small and stated advance of price as would form merely a sufficient compensation when the banks here were paying specie for their notes, and which would never exceed one per cent, to the most remote city of the confederacy. This would remove one great source of abuse, exercised by the banks, of extortion upon individuals, and making a profit upon the possible voluntary discrediting of their own notes.

2. Another beneficial change would be to choose the bank directors, not from the *borrowing class* if possible; and at all events to forbid the persons chosen borrowing money from the parucular bank they managed, or being sureties upon discounts for other persons—whose interests, as family or business connexions, might operate on directors precisely as their own individual interests. And as the directors would thus be deprived of their present indirect advantages, and profits, which are so much coveted and so highly valued, it would be proper to pay them for their then disinterested services.

3. Another reform would be secured by putting an end to all standing loans, or "accommodation paper," as termed in bank language; and to bring back the procedure to the original design, and confine it to the legitimate operation of discounting real business notes, having but short time to run (say 60 or not exceeding 90 days) and each note to be paid, and the transaction to be closed, at the maturity of the debt. Then the banks would be truly what they are now falsely called, "banks of discount," and not loan-offices, as they now are; and not always confining their profits to merely 6 per cent. interest, as we have shown, on their inflated paper emissions.

4. A strong safeguard against all neglect, abuses, and misconduct of directors would be to forbid the secrecy which serves to hide misconduct, and to have all the discounts and other similar transactions of the banks open at all times to the inspection of the public. Every attempt to approach such publicity heretofore has been protested against and opposed in the strongest manner, as tending, by exposure, to injure the credit

of debtors. Such could not be the case, unless indeed in regard to persons permitted to be improperly and unjustifiably indebted; and this publicity would effectually, in future, prevent abuses of this kind; the permitting of which has served often to ruin such favored debtors themselves, as well as inducing injustice to other applicants for discounts, and causing great losses to the banks, and great injury to public interests, habits and morals. It would be only such injudicious or spendthrift borrowers who could have any reason to object to the most public exhibition of their discounts. The magnitude of the discounts of safe debtors and judicious merchants, instead of being injurious to their mercantile credit, would have the opposite operation. For they would be an indication of the large amount of their business and their profits; and not of their necessities or necessary embarrassments—as many of the existing long standing "accommodations" would show of many other debtors of different character.

5. A safeguard against banking fraud, and suspension of payments, would be to require that all debts due from a bank, whether for deposites or otherwise, should be payable in specie, if the bank professed to pay specie; and when in a state of "suspension," and not paying specie, nor professing to pay it, that all such dues should be paid in the notes of the particular bank, or branch. This regulation would restrain the present general and effectually evasive procedure of the banks, which enables them to avoid paying specie, even when professing to pay. By the prevailing system of receiving foreign notes of non-specie paying banks on deposite, and issuing only such notes, and so managing as to remove all its own notes (by exchanging them with other banks or branches,) to distant circulation—and by claiming to pay all checks in "current bank notes," that is, in the worst kinds of foreign notes which the bank may choose to receive on deposite, (or the very purpose of effecting the evasion—) by these paltry and scandalous tricks, the bank is effectually guarded from being compelled to pay specie to any considerable extent, even when professing to comply with the obligation; and also from the necessity of issuing its own notes, when refusing to pay specie, and thereby being made subject to such penalty for the refusal as may be required by law. If a bank suspends payment, it should at least be subject to such penalty for the suspension as the law had imposed, and the bank had chosen as an alternative preferable to paying specie. This is all that is sought to be secured by this particular measure of reform. It is manifest that by the now general tricks of evasion, (tricks, which if resorted to by an individual, would stamp him with the character of a desperate and shameless bankrupt, if not worse,) the legal obligation of a bank to pay specie is made nugatory, and also the penalties for refusing to pay. At this time, and for years past, if any of the community had *dared* to put in force the slight and almost nominal penalty on the bank for refusing to pay specie, there would be found scarcely any means to do so. For, by their system of receiving foreign and other than their own notes in deposite, for the very purpose of paying out such notes exclusively, it is scarcely possible to find a note of any particular bank in circulation, in its own town, or the neighboring country. If there were any just ground to complain of hardship in the restriction here proposed, (that is, of all such notes as a bank chooses to receive and to re-issue being placed on the footing of its own notes,) the banks can easily avoid the operation of the rule by refusing to receive such notes as deposites, or, if receiving, by returning them to the banks, by which they were issued.*

6. This plan of partial reform would not always prevent, though it would render much less frequent and injurious, the occurrence of bank suspensions of payment; and neither would we require (as ought to be part of any *thorough* reform) the closing of a bank, as bankrupt, upon its stopping payment. But there surely ought to be inflicted on every suspending bank some general and truly operative penalty, heavy enough, at least, to prevent the banks from reaping any profit from their suspension, and the consequent depreciation of their paper money—which will always be the result, without some such effectual penalties. The existing law of North Carolina allows to the holders of notes on which payment has been refused (and the penalty required by the holders,) 12 per cent. interest and damages thereon; and this penalty has not yet been found of much effect, in any way, nor is it often put in force. But this, or even 10 per cent. interest, might be sufficient for the particular object in view, if in connexion with, and aided by, the other previously mentioned requisitions of this plan of partial reform.

7. The greatest measure of partial reform, in the removal of the *great abuse* which is the fruitful and unfailing source and subsequent support of all other minor abuses, is yet to be presented. This abuse is the existing partnership of the state of Virginia and the banks. This partnership must be dissolved, and the state must cease to exercise (for its designed and supposed profit, but really to its great loss and injury, on every score,) the trade of banking, and cease to be interested at all, much less to the amount of nearly half of all the capital of the banks of circulation, before any great reform to the banking system can possibly be effected. In proposing this particular measure of reform, we can merely refer thus generally and concisely to the great abuse which it would remove. For to discuss and thoroughly expose all the abominations of the state's being a large banking stockholder, and the consequent intimate connexion of bank and state, would alone require more space than can be here given to the whole subject. Even if considered in the partial and very limited view of pecuniary profit to the treasury, we are satisfied that the entire destruction, without any compensation, of all the commonwealth's interest in the banks, would ultimately operate as a gain instead of a loss to the public wealth. When the commonwealth of Virginia is no longer a stockholder in the banks, nor general surety for their solvency, then, and not until then, will legislation on banking be directed for the public benefit, instead of, as now, and heretofore, for the exclusive benefit of the banking interest.

* This now general system of operations by banks falsely professing to pay specie, which is but slightly referred to above, was fully stated and exposed in a distinct article at page 163 vol. 9 of the Farmers' Register.

### *XXI. Measures of thorough reform. Banks without circulation, or very limited circulation.*

But though the adoption of these several defences would prevent all the petty and most dishonest and scandalous of abuses, which now constitute nearly the whole of the great body of banking operations, it would still leave in existence, and in dangerous force, the great and inherent evils of the banking system in this country; and which nothing short of *thorough reform* can effectually guard against, and render the banking system altogether beneficial in its operation.

There are two great principles of the established banking system which are the sources of all their inherent evil effects; and it is vain to hope for exemption from great danger to public interests, and great frauds upon, and losses by, the community, until these sources of evil are either closed, or much more effectually regulated than now. These are, first, the privilege of creating paper money, and the power of filling therewith the whole circulation of the country; and, secondly, the freedom of the banks and their stockholders from responsibility and efficient penalties, when they fail to comply with the obligations assumed. Either to regulate or put down these privileges and exemptions, would be the main object of our plan of thorough bank reform. But, even if if there were any chance to procure a thorough reform, and we could have any influence in directing the plan, we would not aim to reach that end by multiplying regulations and restrictions, and encumbering the statute book with numerous additional provisions, and penalties for violation of obligations by banks. Our system of reform would be very concise. It might indeed be almost comprised in these few words—"let the trade in money be free"—or if that be unattainable, then, "let the banking trade be just as free, and not more privileged, than is the trade in money as legally exercised by individuals." In other words, we would have *free banking* in its fullest sense—but, at the same time, *banking fully amenable to the laws*, and strictly bound by the general restraints of the law. This general system, (if without any exception or limitation,) would put every bank note upon the footing of a bond from an individual, and of which the credit and currency would be determined by the reputation of the individual or banking company by which the note was issued. And each individual partner in a banking company would be severally responsible for the payment of every note issued, and debt incurred by the company.

But though the individual responsibility of stockholders is strictly just, its exaction by law might be waived, as an unnecessary safeguard, in regard to banks on a properly reformed system. And the great and profitable privilege to the banks, of issuing notes as currency, not bearing interest, and which must always be dangerous to the public interests, and a tax levied upon the community for the profit of the bank, might be also granted under proper restrictions, as a kind of middle ground, or transition resting place, between the present vicious system of exclusive paper currency, and a safe and solid currency principally metallic, and the balance of it strictly and fully, and always and truly representing as much existing specie. The paper money thus permitted should never be more than equal to the capital of the bank, or twice the amount of its specie; and no note to be for less than $20; and we would prefer that the lowest permitted denomination should be afterwards raised to $50. The bank might, as all individuals may, in the absence of either legal restriction or legal privilege, issue notes to serve as currency for any less denomination. But they would carry interest, like all other bonds, if not exempted by law, and this would be perhaps a sufficient bar to their excess.

### *XXII. Paper money not necessary to make remittances.*

Inasmuch as when a country is furnished with a sufficient specie currency, (as every country producing commodities to exchange for specie would have, if not using paper money,) as we have before stated, the issue of *redeemable* paper does not permanently increase the amount of the general currency, but only substitutes, and causes the sending abroad as much specie as there is currency supplied of paper—it follows that the great benefit which most persons expect from paper issues, that of "making money more plenty," is altogether fallacious and delusive. It is only after the substitution of specie by paper is complete, and the paper is irredeemable and depreciated, that a greater amount of paper money, even in nominal value, can be kept afloat than the former specie circulation, under like circumstances of extent of trade and of general wealth. Then, indeed, any amount of paper can be poured into and kept in circulation; but its depreciation will increase in proportion to the excess; and the exchangeable value of the whole currency will not be materially, and certainly not beneficially changed; and none but the fabricators of the paper currency will derive profit from either a moderate and redeemable, or the most excessive and depreciated emission of paper money. Then, putting aside this vain and delusive, but very general expectation of increasing the amount of *sound* currency by bank issues, there is no benefit to the general and public interest to be gained from paper money, except its greater convenience for transmission. This is, indeed, a very great and valuable convenience. But it may be availed of very nearly as well by other means, as by transmitting bank paper money. For all large payments, even now, bank notes are very rarely sent to distant places. For such purposes, bills of exchange, (as we have before explained,) are preferable, and always will be used. And if exchange on New York (for example) could not be bought here, for the reason that no one here had funds in New York, (or money due for commodities sold there) then our bank notes would not best serve instead—or if forced to serve, they would be sent back immediately to draw specie—and therefore it would at last be the specie, and not the bank notes, that would be remitted to make payment. But there is another mode more usual and still better than to send specie—which is to send our products, tobacco, flour or cotton, in the ordinary course of trade. Such exportations continually provide to the shippers here funds in New York, or other places with which we trade; and for these funds, bills of exchange are drawn, and sold to those persons who have to pay debts, or to buy

commodities in those places. And thus it is as easy, and is as much a regular business, for our merchants to make payments in England, where an American bank note never finds its way, as in New York, where they sometimes are sent, and would often go, if in good and deserved credit at home. Thus, for distant payments, or transmission, it must be admitted that bank paper is not at all neeessary, nor even the most convenient means for remittance.

For payments and transmissions between neighboring towns, as Richmond, and Norfolk, or Petersburg, bank notes or bank checks are now used as most convenient; but the same might be nearly as well effected, if there was not a bank of circulation existing. A certificate of the deposite of money in a bank merely of deposite and discount, in one of these towns, would serve for transmission to another just as well as a bank note. And all that would be necessary would be to pay a very small premium to the banks as compensation for negotiating these exchanges; and, when requisite, the banks would have to settle with each other the general balance upon a multitude of such transactions, carried on through a considerable time. Such transmissions of payments to and fro would, in the general, nearly balance each other; so that there would in fact be rarely any balance necessary to be remitted in specie. And for conducting such transactions the banks would be well compensated by receiving amounts so small as scarcely to exceed the value of the postage and the risk, in sending a bank note by mail.

### *XXIII. Savings' banks, or banks of deposite and discount only.*

Besides certificates of deposites, or credits for deposites on the books of a bank, there would be other means for convenient payments and distant transmissions, in the certificates of deposites in savings' banks. These carry interest, and therefore are more valuable to be retained by holders than certificates of deposite in other banks; and would be an acceptable medium of payment wherever the character and responsibility of the bank had become known.

Thus, for all purposes of distant transmission, and for which bank paper money is usually spoken of as indispensable, and for which, indeed, that currency does *not* serve well, and is not now generally used, there would be much better facilities in bills of exchange. And for payments nearer home, and especially for small sums, certificates of deposite would offer as convenient, safe and cheap a medium as now exists, or could be possible to obtain. But it may be objected, that this would be merely laying aside one kind of paper curreney, (bank notes,) to resort to another, in certificates of deposite. Even if this were true in the fullest sense, it would furnish no just ground of objection for the most thorough advocate for metallic currency. For the change would be from a paper currency of unknown, unlimited, and unlimitable quantity—not the representative of specie, and impossible to be redeemed in specie—to a paper currency, necessarily limited narrowly by force of circumstances, (if indeed entering into circulation,) of certificates of deposite, of which each one is the evidence not only of a sound and fully and quickly responsible debtor to pay it, but also evidence of as much real money being in existence, in the bank or elsewhere. If all the coin of a fully supplied country were thus deposited and retained in banks, and certificates of the deposites were issued, and used exclusively for the circulation of the whole country, these certificates could, in the first instance, only amount to as much as the coin actually in deposite; and each paper obligation for a dollar would have a specie dollar in existence, and ready to redeem it. But if deposites of coin thus made, instead of being retained in a mere *bank of deposite*, were *all* used in discounting business notes at short time, as is done by savings' banks, (or banks uniting the operations of discount and deposite, and not of circulation,) and further, if *all* the interest-bearing certificates of these deposites were used as money, and entered as such into general circulation, then, it is true, there would be a creation of additional currency, and so far an evil in one aspect. But, at the utmost, there could be only a doubling of the amount, by issuing an equal sum in paper of so much of the former specie currency, as there were certificates of deposite for that entered into actual circulation, and became part of the general currency; and this could not extend far, as is manifest, because such interest-bearing certificates, though very convenient for particular payments and settlements, would not be convenient for, nor often used as currency; but would be held as other *scrip*, or certificates of stocks, yielding regular profits. Therefore, it may be safely inferred, that the slight and transitory applications of interest-bearing certificates of deposite to the purposes of money, although (as in all other cases of paper money) so far substituting and causing the exportation of some amount of specie, would not do so extensively; and that this injurious operation would be more than counterbalanced by the great public convenience of so perfectly safe and responsible a paper currency, or evidences of debt convertible at all times to money, as these certificates would furnish. Indeed, no paper evidences of debt could possibly be more safe, convenient and profitable, and certainly convertible to specie, upon the stated rules and engagements of the bank, *provided* the law rigidly enforced the perfect accountability of the bank at all times, and under all circumstances.

If, then, banks merely of deposite and discount were only to be allowed by law, and the dangerous privilege of creating and issuing paper money, (in notes exempted from bearing interest,) were altogether withheld from them, the safe and beneficial operations of banking might be carried to any extent that the trade of the country required, without legal restriction or limitation of action, and with entire safety to creditors of the banks, to the banks themselves, to the currency, and to the public interests. And the certificates of deposites, bearing such uniform interest (say 5 per cent.) as the rule of the bank fixed, with the sanction of law, would serve excellently well for temporary investments of spare funds; and also as partial and convenient substitutes for money, and so far forming a part of the currency, for remittances, or other payments. But, while serving so well and so conveniently for payer and receiver in transactions for which paper currency is better than metallic, this kind of paper never could

enter very largely into circulation, or take the place of specie in frequent transactions, and for small amounts. Their bearing interest would form an inducement to every possessor to retain these certificates of deposite; and the trouble of calculating interest would of itself be a sufficient obstacle to their general circulation, or even frequent change from one person to another. Therefore, under such a general system of banking, limited to the operations of discount and deposite, the country would enjoy all the safe and solid benefits of the banking system, and be secured from all the dangers and evils, by prohibiting the particular and illegitimate operation of issuing paper money. And yet, even where the latter dangerous and always injurious operation affords convenient facilities to the public, the like or as valuable facilities might be afforded, and without danger or evil, by the interest-bearing certificates of deposites in banks of deposite and discount simply. The operations of these banks would be as extensive in all solid and safe business as the present banks of circulation; and the responsibility of such banks as we propose would be much more sure than if they were further privileged with the (to the banks) very profitable, but dangerous power of circulation. Therefore, such banks of mere discount and deposite, in magnitude and extent of sound and useful business, would occupy as large a space and as prominent a position as the now existing banks of circulation, (after the suppression of the latter;) and as the business of the former would be as undoubtedly safe, and the responsibility as perfect, as the present banks are deficient in both these respects, it would follow that the certificates of the former banks would be in better credit abroad as well as at home, than are the notes of the latter. The banks of mere deposite and discount, if honestly and properly conducted, (which the law could compel,) would never fail to pay their certificates promptly; whereas the banks of circulation cannot possibly avoid suspending payment sometimes, and it will now be long before they will even pretend to pay their notes.

Thus, we infer that the dangerous function of creating and issuing a currency of bank notes, as is now universal in this country, is not required, even to a limited and guarded extent, nor to the smallest extent; and that, without it, all the valuable operations of banking, and of a necessary and safe paper currency, can be used, and to their fullest extent. And if so, the limited power to issue, which was left in the foregoing plans of bank reform, might be dispensed with as soon as a really sound currency had been restored, by a sufficient infusion of the metallic ingredient. Then all that would be necessary to restrain the circulation generally of bank notes, emitted by banks within the state, would be to make them bear legal interest from their date, (or, if dated earlier, from the passage of the law;) and some other and still more operative restriction upon all foreign notes, except such as were, by similar law of the states where they issued, made subject to pay the same rate of interest. Then, if so arranged, there would be nothing to forbid the fullest interchange of such paper money between different states closely connected in trade, (as Virginia and North Carolina,) and by which the state issuing the notes (or some of its citizens) would, in fact, have the benefit of *borrowing* so much money as the notes promised to pay, and the holders of the notes would have the benefit of the interest accumulating thereupon. And we repeat, that because of the new, just and beneficial feature of bearing interest, these notes never could enter so largely into circulation as to make their injurious effects to the community exceed the benefit to the community.

There would be only two restrictions necessary to impose, and to keep always in force, upon this system of otherwise free but unprivileged banking. One would be to forbid the circulation of notes, as money, of less than a certain denomination—whether $5, $10 or $20. This would be to prevent the nuisance to the country of a small note currency in any shape, and for which there would be neither need nor excuse, when the general system would operate to preserve enough specie for all small dealings. And neither would it be difficult, under such circumstances, to effectually prohibit small notes. They have not been, and cannot be, driven from circulation at present, even by the severest penalties imposed by law—and all such laws become a dead letter—because the operation of law itself has served to expel silver from circulation. Smaller sums than $5, or even $1, *must* be used; and if the legal penalty for circulating any such were made infamy and death, the law would be as powerless as are the present pecuniary penalties. But if specie be but *permitted* by law to circulate, there would never be any difficulty in preventing by law the circulation of either foreign or domestic bills for small amounts.

The next restriction on all banks should be, to compel the performance by them of whatever they had undertaken to do, and were pledged to the country and the government for; and especially in regard to the prompt payment of specie for all notes payable on demand, or certificates of deposite at the limit of time fixed by themselves for the redemption. It is now a fashionable and favorite assumption in defence of banks that fail to pay their notes, that they then stand upon the same ground, and ought to be considered precisely as individual debtors who cannot conveniently pay their bonds on the day when they become due—and that the holder of the bank note has the same remedy at law, as the person to whom the bond was executed and is due. But the cases are altogether different. The contingency of the payment of a bond not being punctual is understood, and the consequent injury, and the remedy, are duly weighed beforehand; and these considerations very generally are in effect *insured against* by an additional amount being given to the bond, if for the purchase of commodities. Thus all purchases on time, for which bonds are given, are at a greater advance upon the cash price than merely the amount of legal interest for the time of credit. But bank notes were issued, and passed into circulation, and, by expelling specie, became the general or sole currency of the country, so that every man is *compelled* to receive and to use them as money, when no matter how much depreciated subsequently, upon the ground of the perfect confidence of the early receivers of the notes that they would at any time be paid in specie on demand. Without this general confidence, the notes could never have obtained circu-

lation. The issuers have profited to the fullest extent by securing this confidence at first, and, in justice, ought to be compelled (if not willing) to meet their voluntary engagements, upon which alone that confidence was founded. So far as to banks that expected and intended to comply with their engagements. And as to any banks that issued notes, when neither expecting or intending to pay them on demand, as promised on their face, there is still stronger reasons why they should be held to the strict performance, and to the letter, of a legal and solemn engagement made in (intentional) falsehood, and for the purpose of fraudulently gaining a benefit and profit, for which a part of the promised consideration (the punctual redemption in specie) was not designed to be given.

But it is idle and ridiculous to attempt to represent as alike, and to put on the same footing, the paper currency issued by banks, and other bonded debts. It is an obvious truth that the very life's blood, and source of existence, of a paper-money currency, (which is redeemable, and before it is discredited or depreciated,) is the general confidence in its perfect convertibility on demand to gold or silver. Without such confidence, (or otherwise, the securityship by, and acceptance of them by government,) bank notes could not at first become currency—and without the continuance of undiminished confidence, neither could they remain in circulation, *unless indeed* the ground of confidence had been totally overthrown, by the banks refusing to redeem their notes. Then, indeed, they would continue in circulation; but as a depreciated currency, and because the better currency had been by it expelled from circulation. For any individuals or corporations to gain currency for their notes by securing false confidence, and then to keep them in circulation by totally forfeiting confidence, is nothing better than swindling, and that upon the most extended scale of operations on which swindling has ever been performed. And the law should forbid and prevent, or punish such procedure, and society should condemn, denounce, and treat it as it is, an enormous moral and social offence, even if the main object of both the government and of society were to *sustain* the policy and the credit of the paper money system. For the only possible chance for sustaining permanently the credit of this system, and thereby gaining the benefits from its successful operation which its advocates believe to be attainable, will be to purify the system, cut off from it at least the manifest and notorious abuses and frauds, and thus, by compelling better conduct, preserve to the banks and to their issues as much as possible of good reputation and ground for claim to public confidence.

If a stranger to the circumstances of this country, in other respects, were to learn its condition as to banking operations and their results, it would be to him utterly uncomprehensible that *any* people, and much less a *free* and enlightened people, should submit to be thus ruled, and plundered, and corrupted in morals as much as impoverished, by a system which is beneficial only to a very small portion of the community, and they mostly of the classes who seek to live, and do live and fatten, by depredating upon the property and fruits of the labor of the community. And this worse than Egyptian bondage of the honest and laborious many, to the dishonest and rapacious few, is submitted to by the suffering community, impatiently indeed, but as if there were no help, no possibility of any remedy or mitigation being afforded. Indeed, a large portion of the plundered and outraged class are so deluded and infatuated as to deem the system which oppresses them as their best aid and support. And the operation of this delusion, and the still stronger influence of the power of the banks, have served for many years to render the iniquitous system impregnable, and all assaults upon it to be not only hopeless, but even ridiculous. *But the time has come when this enormous power is tottering, and may be assailed, not only with hope, but almost with certainty of success.* And the enormous excesses and still extending abuses and frauds of the paper money system have alone brought it to this now feeble and vulnerable condition. There is nothing now wanting for its purgation and reformation, but light on the subject, to induce the people to judge and to act, and they will, in a voice of thunder, pronounce the speedy and utter condemnation of this stupendous system of delusion, fraud, pillage, and usurpation. Every individual who thinks that *bank reformation* is needed, should exert his influence, no matter how low he may estimate it, to diffuse information among his neighbors. Associations for promoting *bank reformation* should be formed, and auxiliaries established in every county, to forward the object, by causing the publication, in the cheapest possible form, and spreading before the people, of such papers as will expose the evils and the fraudulent and ruinous operation of the irredeemable paper money system. If this were done, upon a concerted plan of extended operation, and but a few suitable, zealous and active individuals were to commence action in each county of Virginia, it would not be long before they would increase their numbers twenty for one; and with the aid of a very small pecuniary contribution from each member, they would command a treasury that would flood the country with *truth-telling publications* on this subject, on which heretofore almost nothing but falsehood has been sent forth from the press. The gross abuses of the irredeemable paper banking system could not stand a year in Virginia, nor much longer elsewhere, against the assaults of such an organized array of foes. We earnestly urge all of the few who are already fully awakened to the enormity of the evil, to unite on this plan of procedure. Let no man think that he is too weak to forward the great movement. The great body of the people, however ill-informed as yet on this subject, are open to conviction, and ready and anxious to be instructed. Any one zealous asserter and preacher of the truth, by proper exertions, can in a few hours draw to his aid five or ten others, equally influential; and the five or the ten soon could be made fifty or a hundred. A very small contribution only should be required, say a dollar, or even less, so as to enlist as many as possible in the movement; and, if such means were used, it would not even require another general election of delegates to the legislature of Virginia, before that body would know that it was the will of the people that banking abuses should be permitted to proceed no farther.

Farmers of Virginia—mechanics—all who live

by honest labor—will you not make an effort to secure yourselves and your posterity from the enormous and increasing exactions and depredations of this system of fraud and usurpation?

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### THE CONDITION OF AMERICAN AGRICULTURE, AND THE PROPRIETY OF AFFORDING TO IT GOVERNMENTAL AID.

Extract from the Address of the Hon Chilton Allan to the Kentucky State Agricultural Society.

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We will now take a view of the agriculture of our own beloved country, and in doing this, I will enumerate the circumstances that have contributed to its advancement and those which have made against it.

Since the revolution, the repeal of the law of primogeniture—allodial titles, the facility of acquiring portions of our vast territory, and protected industry presented a grand theatre for the display of the productive powers of agriculture, and with these advantages, without aid from government, it has been the chief agent in making the United States what they are. Here has been an expansion of population, intelligence and wealth, which has astonished the world. The disadvantages which have operated against agriculture in the United States are the following:

The original emigrants brought with them a very imperfect knowledge of tillage, the art being then but little understood in the mother country.

The emergencies attending new settlements in a savage land prevented improvement.

The great quantity of land and scarcity of laborers, caused the people to be perfectly regardless of the preservation of the soil. The fashion was to tend corn and tobacco in the same fields as long as they would produce, then throw them away and clear new ones.

In the old states we find thousands of acres that have been thus exhausted and grown up in thick underwood.

In Kentucky, our habits of negligence have been increased by the fertility of our soil; nature having done so much, many of us concluded there was very little for man to do, and it is a melancholy fact that, at this very time, two-thirds of the first cleared fields in the state will not produce half as much as they did at first.

Among the causes that have retarded the progress of our farming, none more deserves our notice than the general passion for large tracts of land. The great length of our rivers, the vast extent of our continent, and the cheapness of wild lands, have given us large ideas, and we have come to measure our wealth by the number of acres we possess. And in this wild career, with hearts of controversy, we lay out all our means in extending our territory. Hence our country now presents so many large tracts incumbered with old logs, brush piles and weeds. It is said there are three elements of wealth—land, labor and capital—this is a bad classification, there is in truth but one element of wealth, and that is *labor*. Capital is nothing but concentrated labor. The man who lives on the profits of houses, goods and money, lives on labor that has been performed. Land without labor is of no value. It is from the labor and not from the land we derive profit. A million of dollars laid out in wild land will not bring the owner a dinner or a cent. One acre in good cultivation produces more profit than a thousand that is uncultivated. There never was a greater mistake than the investment of capital in land to lie idle. Let us look at a case in miniature, and the idea can be applied to the whole state.

Of two neighbors having good land, suppose one has kept one hundred acres of his land for the last fifty years under good tillage, while the other has kept a hundred acres of his uncleared, the profits of the one hundred acres under tillage, say is worth $300 annually, and this annual income is put at such profitable use as that the principal and interest accruing will have yielded 6 per cent. annually; the amount in fifty years would be $90.416 70; while he of the woodland would have been all the time paying taxes and receiving no profits. If one half the capital that is now invested in land in Kentucky was invested in labor upon the other half, it can be demonstrated by any man competent to make calculations, that the aggregate wealth of the state would be more than doubled. The criterion of the size of farms ought to be this: to have them no larger than the labor employed could keep in the highest state of cultivation. While a farmer has logs and brush, and weeds and worn-out fields in his limits, he should never think of adding. He that has a large tract of land and few laborers, and is living in poverty among thorns and thistles, let him sell half and employ the proceeds in cultivating the other half, and he will grow rich by the change. Our people are sent off to the new states—our school houses are empty from the sparseness of our population, and thousands of children are growing up in ignorance and actual poverty from the vain pride of their fathers to have large tracts of land.

But the great disadvantage under which American agriculture has had to labor, is the neglect of the government. When we have seen that the ancient Egyptian, Assyrian, Persian, Phœnician, Jew, Chinese, and the inhabitant of ancient India, became great and prosperous by bringing the power of government and religion in aid of individual industry in cultivating the earth: when we have seen that all the modern governments of Europe have discovered and are now practising upon this ancient principle of national improvement, is it not astonishing that our national and state governments are the only ones in the world that give no direct assistance to tillage? Our surprise is increased when we read the following words from the last message of President Washington to congress:

"It will not be doubted that with reference either to individual or national welfare, agriculture is of primary importance in proportion as nations advance in population and other circumstances of maturity; this truth becomes more apparent and renders the *cultivation of the soil more and more an object* of public patronage.

"Institutions for promoting it grow up, *supported by the public purse;* and to what object can it be *dedicated* with greater *propriety?* Among the means which have been employed to this end, none have been attended with greater success than the establishment of *boards* composed of proper characters, charged with collecting and

diffusing information, enabled by premiums and small pecuniary aids to encourage and assist a spirit of discovery and improvement.

"This species of establishment contributes doubly to the increase of improvement, by stimulating enterprise and experiment, and by drawing to a common centre the results every where of individual skill and observation, and spreading them thence over the whole nation. Experience accordingly has shown that they are very cheap instruments of immense national benefits."

What wizard spell—what fatal darkness has blinded the eyes of our public councils so long to the great agency of human prosperity, and to the parting counsel of the father of his country?

Why in the name of the experience of the world are manufactures and commerce more entitled to governmental protection than agriculture? While it is true, that seven-eighths of our population live by agriculture, is it not strange, passing strange that, in a country possessing free institutions, it is also true that, from the foundation of our government up to this time, there cannot be found, either in the statutes of the state, or the nation, the word agriculture; while it is true that the national code from 1789 to 1836 is replete with provisions for the protection of manufactures; while it is true that our commerce in every place on the globe is under the shield of national power, is it not strange, that it is also true, that there never has been appropriated, either from your national or state treasury, one dollar for the direct encouragement of the *art of husbandry*.

The question of domestic manufactures has occupied the widest space in the public attention. Behold the power of commerce! From 1816 to 1836, for repairs and increase of the navy we have expended $22,000,000; during the same period the whole naval establishment cost $66,-000,000. At this expense, our nation, very properly, has made the stars and stripes wave over every ocean and upon every sea, for the protection of our commerce.

Reference to a single recent historical fact will illustrate the ascendent power which commerce has acquired over the councils of our country, and the sleepless vigilance with which it is guarded in the most remote parts of the earth. In the year 1831, the merchant vessel Friendship from Salem, was captured and plundered on the pepper coast of the island of Sumatra. After the capture of the Friendship, Capt. Endicot, her commander, told the islanders that he belonged to a great nation on the other side of the globe, that would, before the end of twelve months, send a big ship to punish the outrage that had been committed upon him. They laughed at the idea of the existence and power of the United States. The news of the capture of the Friendship was brought to our government. The powerful ship Potomac happened just at that time to be ready for sea, and she was forthwith despatched to avenge the outrage which had been committed upon the commerce of the United States. Time rolled on; the twelve months had nearly elapsed; the 13th moon was nearly at hand, in two days more the pirates would hail the anniversary of the capture of the Friendship. All but a very few were deriding the idea of the threatened visitation of the big ship; yet they could not dismiss the ominous threat from their minds. On the morning of the 7th of February, 1832, just forty-eight hours before the expiration of the twelve months, the sun rose on Sumatra; and, behold! there stood, sure enough, the terrible big ship! They saw, in the stars and stripes, as they floated on the breeze, the fate of the pirate and the murderer. Their forts were stormed, and their town laid in ashes; and such a terrible impression made of the power and justice of the United States, that since that time, the smallest American vessel can float in safety in these remote piratical seas.

Thus, it was to protect an inconsiderable branch of our commerce, upon the opposite side of the world, that a national ship circumnavigated the globe, in a voyage of four years doubling the Cape of Good Hope in going out, and that of Cape Horn in coming in, at the cost of probably a million of dollars. If the national mind, if the national resources, could be brought to bear thus directly on agriculture, what glorious results would follow! The expense of this single expedition would have established an agricultural college, with an experimental farm, in each of the states, and made educated, practical farmers of thousands of poor orphans.

But why has it happened, here in a free land, where farmers constitute seven-eighths of the whole population, that the arts and commerce have been able to monopolize the resources and legislation of the country, while not one hour is ever devoted, by our public functionaries, to the consideration of agriculture? These are the reasons:—Those devoted to manufactures and commerce have been able, from their concentrated position, to act together in organized concert; and concert has enabled them to bring into their service the public press and public men. They have been able to bring to bear upon public opinion, all the means of popular instruction; while those devoted to agriculture have been dispersed over the continent, from Maine to Louisiana, and from the Atlantic to the far west, each man in comparative solitude, relying upon his individual efforts, without the means of communicating with his brethren of the same class. Having no union, this mighty, unembodied, disorganized interest, acted not at all upon the public councils. But the spirit of the age will overcome this difficulty. Most of the states have already made agriculture the subject of legislation; societies are every where springing up; public journals, devoted to the art of husbandry, are multiplying; able men, in all parts of the union, are addressing the people in their primary assemblies; light is shed abroad among the farmers, and the time has arrived when those who pay nine-tenths of the public revenue, will claim the right to be heard in our public councils.

It will be impossible, in a free land, for the stupid and absurd notion, that the seven-eighths of the people, devoted to the cultivation of the earth, should remain ignorant, while education is mainly reserved for those devoted to the learned professions. It will be impossible, where the ballot box is in the hands of the farmers, for the emoluments and honors of the government much longer to be concentrated in the hands of other professions. It will be impossible, in a free land, for those who pay nine-tenths of the public revenue, to remain much longer quiet, and see annual thousands squandered in local and trivial legisla-

tion, while the great basis on which stands the public prosperity, is wholly neglected.

There is but one thing needful to make agriculture in Kentucky the surest road, both to wealth and fame; and that is, to raise the standard of education among the farmers. When this is done, our educated young men will not all crowd the learned professions, but will soon find that the occupation of a farmer is more sure than any other, to lead to competency and honorable distinction. Whenever the opinion shall prevail, that the cultivation of the earth gives greater scope for the exercise of a highly cultivated mind, than any occupation in the world, the landed interest will learn its true power. It will have its statesmen and orators every where, in primary assemblies, and in legislative halls, to defend and protect its interests. The vast elemental power of agriculture will then be brought out of that chaos, in which it has been so long buried, and shaped into system.

Behold the millions of minute streamlets, issuing from the sponges of the Alleghany and Rocky mountains, without any apparent connexion! Yet, by-and-by, they form themselves into a thousand noble streams, and these thousand unite their mighty volumes of water in the Father of Rivers, which pours his resistless floods into the ocean! So shall the scattered, and, at present, apparently disconnected interests of the farmers, from the Atlantic to the far west, and from the great Lakes to the great Gulf, be formed into a union that will rightfully and safely control the destinies of America, and perhaps of the world.

This enlightened interest will not seek, in the least, to depress the favor which manufactures and commerce have in the government, but to place their mother, agriculture, one step above them. Then agricultural colleges, experimental farms, geological surveys, reports on productive industry, and premiums for new and improved implements, will occupy the time of congress, and the state legislatures.

We have seen, that all the eminent states of antiquity made agriculture the chief care of their governments. We have seen all the modern nations of Europe lie in poverty and ignorance, and despotism, until they discovered that God had connected the virtue, and intelligence, and property of mankind, with the cultivation of the earth: until they discovered that the power and resources of the government must act directly on the subject.

The question may be asked, in the promotion of agriculture, what should be left to individual industry, and what should be performed by the government? I answer, whatever individuals can do, they will do, better than the government. But whatever the interest of the whole people requires should be done, and which is beyond the means of individuals, should be performed by the whole people, through their government.

The industry and finances of France were in a wretched condition; the nation in poverty and ignorance, until that country happened to have a great king and a great minister; they saw what was the matter. Henry IV. and Sully applied the remedy; they applied the funds of the government to raise agriculture; and by stimulating a single branch of industry, they raised France to opulence. They gave bounties for raw silk, and for rearing mulberry trees. The result is, that besides the supply of her own vast consumption, she annually exports $25,000,000 worth of silk. Thus by the application of a small premium, which no one felt, the prospects of France were changed. The silk culture gave an easy and pleasant employment to millions of indigent people, and created a vast home market for all the products of agriculture, and changed the habits of the people from indolence to activity.

It is now agreed that America is better adapted to the culture of silk than Europe or Asia; and it is perfectly certain, that judicious legislation would introduce it into these states, to the saving of the drain of $20,000,000 of specie, which we annually send to the east for that article. In our own time, and within our own observation, the industry, finances and powers of the world have been revolutionized by the culture of a single plant, (cotton.) Russia was unknown among the civilized nations, until the government of that country, by bounties, induced agriculturists from other nations, to settle in their dominions. In 1783 Catherine II. established schools, and as early as 1793, Russia became an exporter of grain to the amount of millions of bushels. There are now Americans in Russia conducting farming operations on a large scale. Before the power of the Russian government was brought in aid of individual industry, in the promotion of agriculture, there were but a few fishermen's huts on the Neva, where now stands the most splendid capital in the world.

Sweden was a semi-barbarous and half-starved nation until Charles XII. made agriculture an affair of state policy, and established agricultural colleges.

Agriculture was in a very low condition in Austria, until the sovereign of that country discovered the true basis of legislation; and to make the proper impression upon her subjects, of the importance of agriculture, she caused medals to be struck and distributed among them, containing this inscription, "*The art which nourishes all other arts.*"

The government of England has incorporated agricultural societies, and endowed them with ample funds—geological and agricultural surveys are made—an analysis of all the soils, with the best modes of improving them, and reports descriptive of all the modes of industry and implements used, are made at the expense of the government, and England derives an income of annual millions, by supplying the world with her surplus live stock.

The distinction which I take of what should be left to individuals, and what should be performed by the government, is plain. The very many things connected with agriculture, which the public interest demands, and which is beyond the power of individuals, will readily occur to the mind of every reflecting man. But above all, it is not in the power of individuals to make adequate provision for the education of the people. From all past indications, it is not at all probable, for a long time to come, that we shall be able to bring into practice any efficient plan of general education, unless we can connect it with agriculture. The great, invaluable end to be accomplished, by the joint action of the government and individuals, is the education of the children of the state.

We do not desire exuberant harvests to fatten men, as mere animals. The value of man is developed by kindling the spark of divinity within him. It is computed that there are 150,000 children in the state; and of this number only 30,000 are receiving a tolerable education. Is not this view enough to make the patriot's hair stand erect!

Our political institutions vest political power in the hands of the majority; if that majority should become uneducated and ignorant, they will of course lose all knowledge of the principles of our government, and all desire for just and equal laws; and, just as sure as God rules the heavens, and punishes men for the neglect of duty, in the long run our liberties will perish by misguided ignorance. If we do not make the education of the rising generation an affair of state, our descendants, at no distant day, will, in the first place, be plundered of their property, through the forms of the ballot box, at the instigation of agrarian demagogues; and next, they will take shelter in the arms of despotism, as a protection from the violence of mobs. It is difficult to convince some men that the intelligence of the people ought to be considered public property, and the only shield of our possessions. They cannot readily see the deep interest they have in the education of other people's children. They do not reflect that they have the same interest in the virtue and intelligence of the voters, upon whose voice at the ballot box depends the existence of the laws and constitution; that they have in the virtue and intelligence of the judge who has to decide upon their title to their houses and lands, in court.

The lesson taught us by the fathers of our institutions, that these institutions have no other foundation than the virtue and intelligence of the people, is not an idle saying. There is no dodging the question. The instruction of youth must be made an affair of state, or the American experiment will turn out to be a splendid failure.

But again, we do not desire fields waving with rich products for the mere gratification of animal appetite. The end and aim of all the efforts of man is happiness; and happiness is certainly more connected with the good cultivation of the earth than any other occupation. Man, as he came from the hands of his Maker, was placed in a garden adorned with every fruit and flower, because these, above all created things, were the elements of that pleasure most agreeable to a pure mind. And now, where are the retreats of happiness in this world, comparable to well arranged houses, clean yards, and well cultivated gardens? Look abroad, and wherever you see shackling fences, burry fields, ducks and geese in the springs, hogs rooting up to the doors, and cattle depredating upon corn hid in the weeds, you will find the men in grog-shops, and the children without school-houses, and their mothers in misery. On the contrary, wherever you see highly cultivated fields, a yard of green sod, orchards of choice fruit, and gardens of select flowers, you will find intelligence, virtue and happiness.

We therefore regard agriculture, not only as the great primary interest of man, in relation to the supply of his wants, but as the source of his most elevated pleasures, and as the only sure basis of his liberties and civilization.

I have satisfied myself, by much observation and reflection, of the truth of the following statements:

1. That at least two-thirds of our arable land is annually becoming poorer by unskilful husbandry.

2. That it is practicable to make our lands annually more fertile.

3. That both our arable and pasture lands can be made to produce twice as much as they have done.

4. That, at inconsiderable expense, the cattle in our state can be made worth annually upwards of $4,000,000 more than they have been.

5. That with the same amount of food, our swine may be annually advanced in price $2,000,000.

6. That there is yet in use among us, in a large part of the state, very imperfect agricultural implements.

7. That two men, with the best ploughs, can perform more work in a day, than three with those in common use.

8. There having been no analysis of our soils there is consequently general ignorance as to the best modes of enriching our lands by mixing different soils together.

If these views approximate the truth, it is evident that there is a wide field for the action of government and societies.

What has been done within a few years, proves what is yet in our power.

The tax value of the lands of the state is $127,122,509. No man of observation will doubt that at least half of this value has been added in the last twenty years by improvement in agriculture. Inquire of the citizens of Shelby, Henry and Montgomery, and they will tell you that the value of their lands has been doubled in the last twenty years, by the example of a few skilful farmers settling among them.

There are 490,613 cattle taxed in the state, their average value is but $5.87, while the average value of those in three counties that have improved their stock, is $15.

The aggregate value of the whole is but $2,882,218; but if all the counties had given the same attention to improving the stock as Fayette, Bourbon and Clarke, the aggregate value would have been $7,359,195.

The experience of the few counties that have given their attention to swine, has demonstrated that the improved breeds can be brought to maturity upon half the food required by the old sort.

A proper rotation of crops on exhausted fields has restored them to their primitive fertility.

Is it not an object worthy the attention of law makers, and of good men in all ranks of society, to widen and extend those improvements that have already so enriched a part of our state; and shown that agriculture, properly understood, is the most lucrative occupation among us!

If the people will form themselves into societies, and patronize agricultural journals, collect useful facts and publish the results of their new experiments, and bring the products of their industry into competition at public fairs,—if the legislature will come with the aid of its influence, and provide an agricultural college with an experimental farm, and give a few hundred dollars annually in the form of premiums for the best modes of

cultivation, and for the best essays, and best ploughs, a new spirit of inquiry will arise in the land, the occupation of the farmer will ascend to its proper station. There will be a new diffusion of intelligence, and annual millions will be added to the productive industry of our state.

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### HALESWORTH FARMERS' CLUB. MARCH 26, 1841. SECOND ANNUAL REPORT.*

From the London Farmers' Magazine.

Your committee have great pleasure in presenting their second annual report of the proceedings of the Halesworth Farmers' Club, and they have followed the plan adopted in the first report: viz.—to notice briefly all the subjects discussed in the club during the past year, with short statements of the arguments used for and against.

*First monthly meeting, April 24th.*—This being the first meeting after the annual dinner, the yearly business of the club was gone into. At this meeting it was agreed, that the chairman should become a member of the Royal Agricultural Society, on behalf of the club; a set of rules were drawn up and agreed to, for the management of the library; and a number of subjects, suitable to the agricultural operations of the different months, were fixed upon and adopted by the members present. Sweepstakes for the different roots were entered into; and the important question, as to "whether the corn laws should be considered eligible for discussion in the club," was put from the chair, and carried at once in the affirmative—that question being considered more as a protective than a political question.

*Second monthly meeting, May 22d.—Subject* —"*On the advantages to be derived from preparing timber by Kyan's process, as applicable to agricultural purposes.*" The member who introduced the subject gave striking proofs of the preservative powers of this process, and expressed his conviction of the very great advantages to be derived from its general adoption in preparing timber. He produced at the meeting, specimens of the ends of hop-poles, some of which had been subject to Kyan's process before having been fixed in the ground, while others were put in without any preparation. These hop-poles had been inserted in a stiff soil for nearly two years, and the result was, that the poles which had been kyanized were sound, while the others were in a state of decay. Others who had also used this process, spoke with confidence of its preservative powers: and the chemical effect which takes place in kyanized timber was fully explained to the meeting; when, after several general remarks, the following resolution was agreed to.

*Resolution.*—The subject—"On the advantages to be derived from employing Kyan's process for the preservation of timber for agricultural purposes," having fully occupied the attention of the meeting, and many gentlemen having spoken of the efficacy of the process, the members present strongly recommended it as worthy of general adoption; as, from specimens produced at this meeting, there is no doubt of its great usefulness, particularly in the preservation of soft or inferior kinds of wood: but as time alone can test the value of the process, it is requested that gentlemen who have tried it, will at some future time report the result of their various experiments to the club.

*Third monthly meeting, June 19th.*—At this meeting, judges were appointed to decide upon, and arrange the conditions of the sweepstakes, to be given for the best roots to be produced at the monthly meeting in November. *Subject*—"*The best method of preventing the turnip fly.*" On this subject opinions were greatly divided: many members were inclined to attribute the prevalence of this insect to the manure employed, and many examples were given which tended to support this view; but other members advanced the following reasons in opposition to this opinion:—first, that in numerous instances, the fly abounded where no manure had been used for the turnip crop; secondly, that this insect has been found repeatedly upon long summer-lands; and thirdly, that under the impression that farmyard manure might have something to do with the increase or production of these insects, rape-cake was used instead, and yet the crop was cut off. One member placed great reliance on ploughing the land two or three days before sowing the turnip seed; but in reply to this, another stated that he had repeatedly tried the plan without effect. Several examples were adduced of the curious fact, that in consequence of sowing seed on part of the field in the morning, and after a few hours sowing the remaining part in the afternoon, the difference of a few hours in putting in the seed saved the plants in one part, whilst in the other they were eaten off—the cause of this could not be satisfactorily accounted for. After an interesting debate, the following resolution was adopted:

*Resolution.*—"The best method of destroying or preventing the turnip fly," having been fully discussed by this meeting, it is considered, that as the subject is involved in great obscurity, both as regards the origin of this destructive insect and the means of preventing its ravages, no particular plan appears worthy of general adoption; and as different members have promised to make several experiments, it is recommended to wait the results, which are to be reported to the club at the end of the turnip season.

*Fourth monthly meeting, July 17th.*—*Subject*

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* We present the following extract not so much for the value of its matter, as to exhibit an excellent mode of working for agricultural societies. The procedure of this English society, though more methodical, and reported according to a certain form, is very much like that of the weekly agricultural meetings held in Boston, which we have before so much applauded, and recommended for the imitation of other meetings or societies. This plan of having intelligent and practical farmers to meet together, and *talk* upon certain designated subjects for discussion, and then correctly reporting and publishing the opinions expressed, would be at the same time the most easy and agreeable mode of communication, and the most useful to the public. Nor should these conversation discussions supersede any other existing business, but be merely added to all others.—Ed. F. R.

—"*The advantages or disadvantages of mowing wheat.*"* The meeting was but thinly attended: the members present, however, discussed the subject with much spirit; and although a considerable difference of opinion prevailed, yet the feeling was decidedly in favor of the advantages of mowing wheat. But the general views of the members are embodied in the resolution.

*Resolution.*—The subject—"On the advantages or disadvantages of mowing wheat," having been fully taken into consideration, the opinion of this meeting, as far as can be obtained from a limited experience, is decidedly in favor of mowing, for the following reasons: viz.—greater expedition and less expense as regards the work; a great advantage in the extra quantity of straw obtained; and the probability of being enabled to cart the corn sooner. An objection having been made, that mowing wheat may affect the interests of the laboring classes, it is believed that such is not the case at present. But further experience is still necessary before all the advantages of mowing can be fully obtained; and circumstances ought always to be taken into account in adopting either the plan of mowing or reaping.

August being harvest month, no meeting took place.

*Sixth monthly meeting, September 18th.—Subject—"The comparative value of the different varieties of wheat. The best preparation of the land for the reception of the seed. The proper quantity of seed per acre. With the comparative merits of drilling or dibbling in the seed."* The importance of this subject, and its being divided into several branches, gave rise to a very animated and lengthened discussion. The member who introduced the subject considered, that the great object of farmers should be to find out what particular varieties of wheat are best adapted to particular soils, so that the greatest advantage might be obtained from seed and soil being suitable for each other;—that his observations must be confined to an experience of several years, on mixed and light soils only;—that for those soils, he considered Talavera wheat a most valuable kind; for not only does that wheat prove advantageous to the farmer in its produce, but is highly approved of by millers and merchants, and commands the first price in the market, being of a fine color and very heavy; it also stands the winter better than any other kind. He had also tried the Eclipse wheat, the Tunstale, the long-straw white wheat, and the improved golden drop.

The Eclipse wheat did well for a year or two, but it proved a tender wheat; and although of good color, yet was deficient in weight.

The Tunstale is a good wheat on land in a high state of cultivation, but not at all adapted to poor land.

The long-straw white wheat appeared not to yield well, but this kind was tried for two years only.

The improved golden drop is a very fine wheat; gives a good length of straw, and is very hardy; and is also very heavy and thin-skinned, and of course a favorite with most millers.

The introducer also noticed the other points of the subject at considerable length.

The opinions on these and other varieties of wheat were various; some members preferring the Tunstale to all other kinds; on the contrary, with others, the old fine red was a favorite wheat; and there was a new variety, called the Rumburgh prolific red wheat, shown to the meeting, which was stated to combine in a high degree, quality, weight, produce, length of straw, and great hardihood.

As regards the preparation of the land, some difference of opinion existed, and much practical information was given to the club by the members present, as to their particular views with regard to fleet and deep ploughing, and the comparative merits of drilling and dibbling. The sense of the meeting was summed up in the resolution.

*Resolution.*—Much valuable information having been given to the meeting on "The comparative value of the different kinds of wheat—the best preparation of the land for the reception of the seed—the proper quantity of seed, and the comparative merits of drilling and dibbling;" it was considered, that as regards the selection of the seed, great care should be to adapt the different varieties to suitable soils. The Talavera and improved golden drop appear valuable varieties for light and mixed soil lands; and the Tunstale and old fine red wheat and golden drop for heavy mixed soil and heavy land. That as regards manure, rape-cake, from a fourth to a third of a ton per acre, will prove a valuable auxiliary to farm-yard manure. With respect to ploughing for wheat, medium or fleet ploughing appears to answer best. The quantity of seed per acre depends so much on the condition of the land, and time of depositing the seed, &c., that no positive quantity can be given. And as to drilling compared with dibbling, the expense of each mode is so nearly equal, that the one or the other plan may be adopted or not, according to circumstances; but that the advantages in time and quantity of produce, appear to be in favor of drilling.

*Seventh monthly meeting, October 16th.—Subject—"The best plan of feeding farm horses, during the winter months."* Much diversity of opinion prevailed on this subject: one member considered bean-meal or pollard as the best food during winter, with Swedish turnips in the spring. Bean-meal was objected to by others as a heating food, causing horses of a certain age to throw out humours. Steeped barley (where price is not an objection) with hay and cut stuff, was highly spoken of; all cut stuff was approved of by some, on the ground of economy; and objected to by others, as likely to prove in the end injurious to the horses, from being swallowed without sufficient mastication. One gentleman of great experience, whose horses are fairly worked, adopts the following plan;—a bushel of oats, with about half a hundred weight of chaff or cut stuff, and one hundred weight of hay or clover per week, for each horse; sometimes three pecks of bean-meal are substituted for the oats. Another gives four bushels of bean-meal with cut stuff, or chaff, and a proper proportion of hay or clover, to four horses in the week, during the working season. When the heavy work is over, he does not give so much corn, but substitutes beet and Swedes.

* That is, substituting the grass-scythe for the sickle, or reap-hook. Our *cradle* is not used in England. —Ed. F. R.

The propriety of tying up horses in stables was noticed, and approved of by some, but disapproved by others, who considered horses did better in well-sheltered yards; but all agreed that stables ought to be well ventilated.

The resolution conveys the general opinions of the meeting.

*Resolution.*—The subject having been fully considered, the impression of this meeting is, that oats or bean-meal, and a due proportion of hay and straw, cut into chaff, with hay or clover in the rack, is the best plan that can be generally adopted. That a proportion of roots may also be given in the spring, to economize the provender; but that great latitude should be given, as circumstances are so very different with many feeders, that what would be an economical plan with one, might be the reverse with another; individuals must act, therefore, according to the situations in which they may be placed. As few farmers appear to have taken the pains to ascertain the exact quantity of food used per horse per week on the average, it is recommended that a statistical account of the quantity, quality, and average price of the food of a horse, for a given time, shall be kept by horse feeders, so as to come to a clear general estimate of the expense.

*Eighth monthly meeting, November 13th.*—The show of roots took place this evening, with a very full attendance of members. The roots were generally large and of superior quality, and attracted much attention. The judges—Mr. S. Robinson, of Henstead; Mr. R. More, of Leiston; and Mr. John Cooper, of Westleton—awarded the prizes of the different sweepstakes to the following gentlemen:—

Red or purple beet, Mr. John Tillott, Wissett; yellow beet, Mr. Freeman, Henham; Swedish turnips, Mr. John Tillott, Wissett; white pudding turnip, Mr. James Johnson, Halesworth; white loaf turnip, Mr. A. Carman, Wissett.

The judges after clearly explaining the grounds of their decisions in regard to the comparative merits of the different roots exhibited for prizes, congratulated the meeting on their very superior size and quality, particularly as the season had been so unfavorable to the root crop in general. They also called the attention of the meeting to some very superior roots which several gentlemen had kindly sent to the show, although not candidates for the sweepstakes. The judges also went into the comparative merits of the different kinds of roots, their fattening properties, and their suitableness for particular soils. Among beet, the old red with a green top, the ram's horn, bullock's, and the yellow, were mentioned as worthy of particular attention by the farmer. White pudding turnip on light soils, for early feeding, and purple pudding, for late feeding, were especially recommended.

A vote of thanks was given to the judges for their services, and the evening passed off with great satisfaction to all.

*Ninth monthly meeting, December 11th.—Subject—On the different kinds of sheep;—those considered to yield the largest profit;—and the manner of breeding and feeding, as applicable to this district.*"—The member who introduced the subject considered that, as respects the particular breed of sheep, every thing must depend on the soil as regards choice; for the kind of sheep suited to one kind of land, would not pay on land of a contrary description. For example: Southdowns are suited to heaths, and the Norfolk sheep are a very valuable kind on light soils. It had been contended by many, that heavy lands are not calculated for sheep; but by folding sheep in yards, they may be kept to great advantage on farms of this description.

In the feeding of sheep, as a general rule, the better they are kept, and the more carefully they are attended to, the better they pay. Sheep require great care, particularly in dry summers, when they suffer much from heat, flies, and also from want of water, with which, at such times, they should be carefully supplied, as the grass is not succulent enough to afford them a sufficiency of moisture. The popular notion, that sheep require no water, is a very erroneous one, and has led to much loss in dry seasons.

A cross between a Norfolk and Southdown, and between a Down and Leicester, he considered as amongst the most valuable breeds for this district. Another gentleman, of great experience as a breeder, allowed that these crosses were fine sheep, but not equal to the pure Down for this part of the country. Both these crosses consumed more food in proportion than the Down. Great errors frequently prevailed in regard to superior size; the rule ought to be taken in respect to the expense of rearing and the expense of food of the different breeds, and under this view the Down was the most valuable sheep.

In feeding sheep, great care should be taken that they are not subjected to frequent and sudden changes from a rich diet to a poor one; and the contrary, from a poor to a full diet; as these changes have occasioned great losses. Rock salt is most valuable in preventing rot and other diseases to which sheep are subject. In the use of turnips as a food, the rule ought to be to clean and cut them, as they go much further by this plan, and do not scour the sheep, which dirty roots are apt to do. Folding on pastures and feeding with corn, is an excellent plan. Folding in yards is objectionable, as liable to cause foot-rot; for though less food is consumed, yet the sheep do not increase in weight in proportion to the quantity of food consumed. Crosses are objectionable to breed from; pure-blooded sheep are decidedly preferable, as crosses soon become deteriorated.

After these gentlemen had given their opinions, a most interesting discussion took place amongst the members present, as to the advantages and disadvantages of the various breeds—the best method of keeping them through the year—the number of sheep which can be kept upon a farm of a certain acreage, &c. Upon these and other points, several members, particularly the gentlemen who introduced the subject, debated with great spirit, and supported their respective views with great ability. The meeting ultimately came to the following resolution.

*Resolution.*—The subject,—"On the different kinds of sheep,—manner of breeding and feeding, as confined to this district,—and the breed of sheep generally considered to yield the largest profit," having been fully discussed, and having excited much interest, the members present considered that the breeds calculated to afford the most profit in this district, both in wool and carcase, are the half-bred Norfolk and Southdown,

the pure Southdown, and a cross of the pure Leicester and pure Southdown; but the selection of either of the above breeds must depend on the kind of soil the sheep are put on, and the nature of the food they are put to.

As regards feeding, the plan of folding sheep, both on arable and pasture lands, and giving them roots and corn on the latter, was considered preferable to allowing them to range over the fields promiscuously. It was also recommended to place rock salt in their troughs, which has been found to act beneficially on the health of sheep, in keeping them free from diseases generally, especially the rot. It is also essential, in dry seasons, that sheep should be regularly supplied with water; and that turning them out to feed when the dew is upon the layers and pastures, is safer than to turn them on after the dew is off:—the exceptions are, in case of white frost, and low lands, when the sheep ought to be kept in until the ground is dry. Care should be taken also not to change sheep too suddenly from low to high feeding; and a frequent change of food appears necessary to the health of this animal.

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### ON HIVING BEES.

Many are trying experiments on the management of bees, and this is all well, provided we can have accounts of all the failures which have attended new modes. Some have buried their bees in the earth to preserve them from winter frost—some have stowed their hives away into their cellars, and others into their garrets. Some build nice bee houses to protect the hives, while others prefer to set them on posts or on the wood-pile unprotected from the weather.

Within a few years a new plan has been adopted—hives have been placed in a dark room or chamber, six feet square, to prevent their swarming, and to induce the bees to build around the hive, whence the honey may be taken without killing the bees. But none of these plans seem to succeed so well as the old one of letting each swarm have a hive by itself, and a post by itself to stand on. It is agreeable to the nature of the bee to send forth new colonies, and no plan which we have seen tending to check this propensity has succeeded.

Bees sometimes swarm in the fore part of May—we have known good swarms to come out as early as the tenth. They usually start between the hours of ten and twelve, and they generally alight on some bush or tree near the mother hive. It was formerly a custom for one to hold an empty hive under the swarm, while another rapped the limb on which it hung, and when the great body of the bees had fallen into it, to turn it right side up and set it on a platform.

But a much better method is to place a platform under the swarm, and set the empty hive right side up, on the platform, raising the hive by means of chips high enough to let the bees crawl under; then give the limb on which they hang a hard rap, and let them drop on to the platform close by the hive. If that is sweet and dry the bees will go in. No hive should be made wet either with rum, molasses, honey, or any other liquid. The instinct of the bee teaches it to seek a dry habitation, and swarms will very often leave a wet one after they have entered it.

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### NOTES ON THE SANDY POINT ESTATE.—NO. II.

To the Editor of the Farmers' Register.

*Sandy Point, 15th May*, 1841.

In my former communication, "Notes on Sandy Point Estate, No. 1," a short and general description of the estate was given. I will now, as opportunity offers, endeavor to give a statement of such improvements as are in progress and contemplated. Up to the early part of the past year, (1840,) the various divisions of the estate were under the management of separate overseers. One residing on the Neck farm, one on the Upper Quarter and Rowe, and one, aided by a young man, on Teddington, whose duty it was in the absence of Mr. Bolling to take a general superintendence of the whole, to transmit his orders to the others, and to keep up with him all correspondence necessary for the management of the estate. Each of these had under his immediate orders, care and control, an adequate number of negroes, horses, oxen, &c., for the performance of the labor on the division of the estate committed to his care. Whatever might have been the advantages arising from this division of labor, the expenses, inconvenience and frequent misunderstandings incident to such an arrangement, much more than counterbalanced them, and rendered a junction of the several divisions with all their laborers into one, a desirable object. Consequently, when it became necessary to discharge the overseer residing on the Upper Quarter and Rowe, early in March, the laboring forces on these farms were added to those of Teddington. And early in the fall of the year when the services of the overseer residing on the Neck were also dispensed with, the desired junction of the whole was accomplished; all of which are now under my immediate management, aided by two young men. Considerable difficulty was for some time experienced, in procuring the services of young men of suitable habits, but eventually we succeeded. So far, the advantages resulting from thus uniting the whole have, I believe, been satisfactory. For the present year our crops are nearly and unavoidably as much detached as when the several divisions of the estate were under the management of separate overseers; or thus, 200 acres of the Neck farm are under corn, 285 acres on Teddington and 118 on Upper Quarter, in all 603 acres.* This division of the crop, could not easily be avoided, and is necessarily attended with some inconvenience, but which will terminate with the present year; and in future the estate will be cultivated as follows: the Rowe farm

* In stating the number of acres as above, the amounts are taken from old surveys, or what have been the reputed contents for years past, and is believed to be nearly, if not altogether correct. A measurement of each will shortly be made, and should any difference then present itself it will be noticed when the results of crops will be subsequently referred to.

of 536 acres, the Neck farm of 600 acres, and 600 acres of Teddington farm, will each form one field, cultivated on the three-shift system of corn, wheat, clover: 100 acres of the Teddington farm divided into five fields, will continue to be cultivated on the five-shift system of wheat, clover, corn, wheat, clover, or one 20 acre lot in corn each year. The Upper Quarter farm of 536 acres, will be divided into four fields of nearly equal area (134 acres) to be cultivated in, 1st, wheat, 2d, corn, 3d, wheat, and 4th, clover, or one half in wheat, one fourth in corn, and one fourth in clover each year. Under this system, in 1842, all of the Rowe farm of 536 acres will be in corn, together with the 134 acres, or one-fourth of Upper Quarter, one 20 acre lot on Teddington. To this will also be added 30 acres of adjoining and more recently reclaimed land on Teddington, in all 720 acres. In 1843, the corn crop will comprise all of Neck farm of 600 acres, 134 acres of Upper Quarter, and one 20 acre lot on Teddington, in all 754 acres. In 1844 the corn crop will comprise 600 acres of Teddington, together with one 20 acre lot, and 134 acres on Upper Quarter, also equal to 754 acres. In each of these years all of the corn land will be sown in wheat or oats, together with 134 acres or one-fourth of Upper Quarter after clover fallow, and one 20 acre lot on Teddington also after clover fallow. In order to prepare the Upper Quarter farm for the intended four-shift system, one fourth of it now in wheat is sown in clover for fallow in 1842, and the one-fourth of it which comes into fallow this season, has a portion of it sown in oats, the residue to be sown in peas, both intended to be ploughed under, as a preparatory manuring. There will consequently be three different rotations on the estate, a three-shift, of corn, wheat, clover, a four-shift of wheat, corn, wheat, clover, and a five-shift of corn, wheat, clover, wheat, clover. These various shifts are not adopted in consequence of any particular difference of soil, but more especially for ascertaining from actual results, on soils as nearly alike as possible, which of the rotations will eventually be the most profitable.

To complete the junction of the horse teams on the estate, since the new arrangement, Mr. Bolling has had a stable recently fitted up capable of containing all of them, or having accommodations for 40 horses. The stable is under the care of an old man, aided by a boy, whose business it is to clean it out thoroughly, at least once a day, and carefully to litter each stall. The horses are fed with corn at morning and noon, and at night with cut oats and fodder; these it is also the duty of the old man and his assistant to prepare and put into the boxes or feeding troughs, previous to the horses coming in at night, so that their respective drivers shall have nothing to do but to unharness their horses, halter, and have them properly curried and cleaned. The horses when at work on parts of the estate remote from the general stable, are accommodated at noon for feeding by stables formerly existing on the separate divisions; to which are added the additional convenience of having stoutly made boxes or troughs, sufficient for feeding all the horses, and which can be moved to any point in a wagon or cart. Communicating with the stable is a house, divided into three compartments, one of which is fitted up as a harness room, where harness of every description must be deposited in its proper position every night, and so kept when not in use, and where it can at all times be seen at a glance. The door of this is locked, and is under the immediate care of the head ploughman, whose duty it is to report all cases of breakage, losses, or want of necessary repairs. Another apartment is for the depositing of all small implements, such as hoes of various descriptions, spades, shovels, forks, &c., when not in actual use. The door of this is also locked, and under the immediate care of the head-man of general work. And the third and largest apartment is for depositing all ploughs, harrows and other large implements when not in use. These apartments are found to be very useful appendages, the want of which is a serious inconvenience on many farms, and on an estate of this extent they are indispensable.

Material is also now being prepared for the erection of a stable, to contain sixty stalls, for the better accommodation of our working oxen: hitherto they have been kept after the general mode adopted in lower Virginia, that is, after working all day, they are turned at night into a yard having a temporary shelter, where their food is scattered for them over the yard, and which they must pick up as they best may. The disadvantages attending this, at best, most slovenly mode of feeding, are I think very obvious, and to the highest degree unjust to the patient, hard-working and valuable ox, and is a fruitful source of loss, disappointment and vexation to his owner. The ox cannot move a foot without trampling his food into the pile of underlying manure, and before he gets half satisfied, the food supplied to him becomes utterly unfit for use, particularly in wet or snowy weather; and from the generally limited extent of shelter afforded him, he is compelled to pick up his soiled and filth-impregnated food exposed to all kinds of weather. By this mode of feeding the strongest and most vicious animals, are always sure to secure to themselves the lion's share, such as it is, to the serious detriment of their weaker and continued weakening neighbors. Add to these sufficiently serious inconveniences, the frequent casualties which occur from their goring and maiming each other, as also the immense waste of food accruing from this most wasteful mode of feeding, which, in a season such as this has proved to be, has been a source of most serious inconvenience to many farmers, and consequent privation and suffering to stock of almost every description. By adopting the mode of stalling his working oxen, Mr. Bolling anticipates that most of these inconveniences will be obviated, that a great saving of food will be effected, while the animals will be kept in much better condition, and at all times fit for efficient services. He will also, at all times, have the full benefits of complete shelter, with a dry comfortable and clean bed; their stalls will daily be carefully cleaned out, and fresh litter supplied; and while they enjoy all the advantages of shelter, care will be taken to have the stables properly ventilated. By increasing the efficiency of this valuable stock of animals, it is also anticipated that a considerable reduction of their numbers may be effected, and thereby derive another source of profit. I am well aware that many consider the stalling of cattle as not being suitable

as a general rule in this country, and that there may be objections urged against the practice. I have had some experience in both modes, of yarding and stalling cattle, and am decidedly of opinion that stalling for working oxen, and milch cows, is the preferable mode. For young stock, when there is no demand made either on their labor or produce, yarding is probably the better mode; and if well and plentifully littered, with a good supply of sound food, they may pass through an ordinary winter season well. But it is far different with animals that have to work hard all day, and whose hours for feeding and rest are necessarily limited. In connexion with the stable will be erected a chaff house, and an open stable for colts. Ample lofts will extend over the whole, for receiving every species of provender for the stock; the horse stable, barn, machine house, chaff house, colt stable and ox stable, will form the sides of a square enclosing the manure yard, with a straw yard in the rear. A pump room, root-room, and boiling house, will also be erected in a convenient location, as also a shade of sufficient extent to receive all carts, wagons, &c. The whole will form a very convenient range of farm offices adapted to the wants of the estate.

By this new arrangement of the formerly existing divisions of the estate, the extent of fencing will be reduced not less than 10 miles; of itself a most important saving, estimating the cost of cutting and mauling rails at 33⅓ cents per hundred, 10 miles of fencing would cost not less than $2,200; and if the value of timber used, hauling of rails, erecting of fence, and waste of ground so occupied by the fences were valued at the low rate of as much more, the whole cost would amount to $4400. And supposing these fences, of pine rails, required to be renewed every sixth year, (and every fifth would be nearer the truth,) the annual cost would be $733.33 without calculating the yearly interest of money so invested.

Leisure does not permit me to extend my notes farther at present, but I will again resume them at an early date, and am, most respectfully, your humble servant, A. NICOL.

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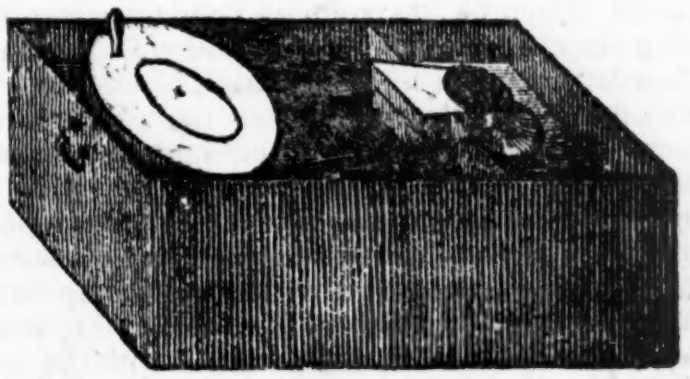
### THE PATENT FAMILY FREEZER.

We have received, from a gentleman of New York, a present of an apparatus of his invention, for making ice cream more easily, quickly, and with less labor, and much less ice, than in the usual clumsy and troublesome mode. We have had it tried; and allowing something for the usual awkwardness of a new process, or use of a new machine, we are satisfied that it will well perform its designed purpose. Even with the help of the annexed figure, it will not be easy to describe the freezer so as to be understood. It will give us pleasure to show it to any one who may desire to see it.

An ordinary wooden chest contains, and serves as a frame for the whole. A deep and narrow cylindrical tin vessel, nearly of the form of a common freezer, and which will hold nearly two gallons, is set with its bottom on a pivot, on which it will turn freely, and has a band around its top, and which passes also around a horizontal wheel. The turning of that wheel (which a child can do easily,) keeps the tin vessel in a rotatory motion, as fast or slow as is desired. The vessel is sustained in its position at top by pressing against two small friction wheels. It is set in a pail, which is so little larger as to leave only about an interval of an inch in thickness between the inside of the pail and the outside of the tin vessel, to receive the pounded ice and salt. A peck of ice is enough to fill the space—and a peck and a half is as much as we both used and wasted in the whole operation. Thus the preparing of this delicious summer refreshment is made much more easy, quick, and also more cheap, in every respect, except for the cost of the machine, which is $15—and that is too much to be paid by families that do not make ice cream frequently. But to those who do, and especially to confectioners, and keepers of public houses, the price of the machine would be saved, and the expenditure prove a profit, in the course of a few months. The mode of operating is thus described in the letter of the gentleman who invented the machine.—ED. F. R.



"The object of the contrivance, you will observe, is simply to turn the tin vessel, or freezer, and at the same time leave the top open, so as to have access to the contents. The arrangements are made with a view, also, to economize in the quantity of ice and salt, to prevent either of these ingredients from getting accidentally into the freezer, and to produce the desired result in a short space of time, and without much labor. If you will take the trouble to let the first operation be performed under your own inspection, and by the following directions, you will judge how far I have succeeded. Any person will understand that the pail must always be placed precisely in one position, which indeed can hardly be placed otherwise, there being a section of a circle cut from the boards under the friction wheels to receive the top of the pail. The pan also will show that it must stand directly under the centre of the large hole made for the purpose, and to fit the pail. The use of the pan is to prevent the ice and salt

from scattering about when filling the pail. The screw, (which you will insert in the end of the box,) is to pull the wheel back when the band becomes too loose. Make the band just tight enough to turn the freezer; if too tight, it will turn harder, and wear the friction wheels unnecessarily. As my machine professes to do nothing more than to freeze the cream where every thing else is prepared, in order to make a fair experiment, it will be preferred to have the ice and salt at hand, the former broken small, and the smaller the better. The cream, or custard, should be prepared in time to cool before it is put in the freezer. All this is necessary in any mode of freezing.

"Now as to the quantity of salt and ice. You will see that the pail will contain but a small quantity of ice, so inconsiderable as not to be worth naming. And one quart of salt is abundant. Rock salt, or the refuse of beef, pork, and fish barrels will do. It will be well when pounding the ice, to provide a box of some kind for that purpose, and as an empty soap or candle box can be found in every family, no one need be at a loss; and no implement is better, or more readily procured for pounding with, than a common smoothing iron, which may be used without at all injuring the face of it.

"We will now suppose the cream to be in the freezer, closed with the tin cover. First throw a little of the most finely pounded ice in the bottom of the pail, and sprinkle some salt on it. (Do not put in so much as to prevent the freezer from going down to its place.) Then put the freezer in the pail, taking care that the socket stands upon the pin or pivot. Stand the pail in the box, covering it with the zinc pan, turn down the friction wheels, and fasten them with the hook, and adjust the band. All this will not occupy one minute. Then fill the pail with pounded ice sprinkling salt in during that operation. You may now let it stand a little, or turn it slowly until the ice melts (a little,) and allow the cream to get near the freezing point. Then settle the ice with a stick and fill up the pail as before. Now remove the tin cover, and introduce the large spoon, holding it lightly with its edge against the side of the freezer. Moving it at the same time slowly up and down, which will remove the frozen cream from the sides, and mingle it with the more liquid parts. As the cream becomes thicker and thicker, the resistance offered by the spoon will of course increase, and the wheel will turn with more difficulty. Then cease turning for a moment until the operator forces the spoon from the top downwards, to remove the hard frozen cream from the sides, and also from the bottom; then turn again for a minute or two, and apply the spoon as last mentioned, until you have finished. Then slip the tin cover on, putting the handle of the spoon through the hole in it, left for that purpose, and let it stand until wanted, and to harden. All this may be done with ease in thirty minutes, (I do it in less.) You need not take the spoon out of the freezer (at all) until you serve up the cream.

"It will be seen from the construction of the freezer, that the contents cannot be turned out in one mass or lump, but must be removed by spoonfuls, which is the more genteel method, unless a pyramid be desired, and in that case, a suitable form must be provided, into which the frozen cream is to be forced and then turned out. In the first machine I made, the neck of the freezer was made to slip on like a cover, with the view of turning out the cream into a body, and although very nicely fitted, the centrifugal force, when turned rapidly, made the cream fly out at the top in considerable quantities. There was no remedy but the plan now adopted."

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From the Louisville Journal.

## AN ACCOUNT OF THE MODE OF CULTURE ADOPTED IN RAISING A CROP OF TURNIPS WITH LIQUID MANURE.

For which the medal of the Highland Society was, at the last December show, awarded to Mr. John Prentice, manager of the Caledonian Dairy.

After the separation from the ground of the white crop which generally precedes fallow, it is the first of the preparatory measures towards another crop to give this a furrow about the end of autumn. This is too commonly done in a careless manner, as being unworthy the care bestowed where the seed has to be sown without any spring ploughing, and almost always with too shallow a furrow. This is done under a notion that by leaving the roots of those grasses and weeds, with which the field may be infested, near the surface, the winter frost will destroy them. This notion is erroneous, for frost does not destroy these roots; their natural position in the soil is near the surface, and the frost often penetrates much deeper without doing them any injury. They can be destroyed in the ground only by burying them out of that connexion with the air which is necessary to their existence. This may partly be effected by ploughing deep, late in the fall, which also deepens the staple of the soil and brings the under soil into contact with the air and the winter frost, by which it is ameliorated.

The field in which the turnips were raised was, in conformity with the above remarks, ploughed deep. It laid in this state throughout the winter, and was harrowed in March, previous to the commencement of applying the urine. The barrel employed contained half a ton. Behind the barrel was a box crossways for the equal distribution of the urine, which covered a space six feet broad. Each barrel served in length forty-eight yards, which, at two broad, made sixty per Scotch acre, or thirty tons per acre of manure. The sources from which the liquid was drained afforded only five barrels per day; consequently considerable time was occupied in going over six and a half acres. During the time, the field received a ploughing in the first week of May; then part of the field was irrigated before ploughing, and part after. It was drilled at 30 inches, and sown with redtop yellow turnips. A few days elapsed after drilling, for this reason: in a new made drill that part of it which receives the seed is formed of the sun-baken particles of soil from the surface forced into the centre from either side, which, if allowed to lie for a day or two, imbibes from the surrounding soil the moisture, and makes a better receptacle for the seed. One road in the middle of the field was manured from the cow-house at

the rate of 23 tons per acre, to afford a trial of the value of the urine. They came up with a most beautiful uniformity after the urine, not one inch of the drill weaklier than another; that after the dung was in tufts, arising from the difficulty of each part getting a fair proportion in quantity and quality of dung in the beginning of December. The day before the show equal portions were taken up, and weighed, but there was no difference in weight, which was at the rate of 36 tons per acre. Those from the urine were more uniform in size than those from the dung; which characteristic they had kept from the time of their coming up to their gathering.

The result of the trial justifies an opinion, already entertained by the writer of this, that the urine has not as a manure been held in that estimation that it ought to have been. When cattle are much on green food, it forms one-fourth of the whole manure, as in the case above cited, where it was equal to this portion; the dung otherwise being 7 tons. From the fact ascertained by the above experiment, that its effects are not destroyed by early application, it can be laid regularly on as made; or should the field on which it is to be laid not be ready it can be stored by having it absorbed in dry earth, and then carted to the field.

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## REMARKS ON THE GEOLOGICAL SURVEY OF THE EASTERN SHORE OF MARYLAND.

To the Editor of the Farmers' Register.

I see, by a late communication to the Register, that a bank of accessible marl has recently been found in Somerset county. When Professor Ducatel made his geological tour of the Eastern Shore, he came to some hasty conclusions; and among others, that there was no accessible marl in Dorcester, Somerset and Worcester counties. The true state of the case was, none had been found; and I suspect but little search has been made. What does not appear, does not exist, is a sound legal maxim, but very erroneous in geology. I have no knowledge of marl here rising to the surface of the earth. Most of the marl beds have been discovered by accident; and a gentleman of my neighborhood, a few days since, showed me a specimen of rich shell marl, which had been washed out of a bank on his estate by the late heavy rains.

The geological discoveries of Professor Ducatel have been of small value, but to him I impute no blame. When his office was established, Maryland was about to plunge deeply in the system of internal improvements, and perhaps the projectors thought a geologist a means of rendering their system popular, by amusing the natives. The legislature provided no means for prosecuting works of discovery, and all that the geologists could do, (I speak of our own shore,) was to ride from county to county, and collect by information materials for an annual report to the legislature. The state of New York is now engaged in examining her territories, by digging and boring. Steel, iron, emery, marble and other valuable fossils have been discovered. If the legislature had placed at the disposal of the geologist a body of laborers, there is good reason to believe some valuable discoveries would have been made. We have, in several parts of the Eastern Shore, indications of iron ore, convenient to navigable water; and the disclosure of marl alone would have been of more advantage, than all the profits, direct and derivative, promised by the internal improvers to Eastern Shore men.

I think Professor Ducatel has, in his late report, stepped out of the line of his avocation, by recommending the extension of the canal from Cumberland to Savage River, a distance of thirty miles. In the true spirit of an internal improver, he makes a small estimate of the costs, and a large calculation of the profits. For internal improvements Maryland has now upon her a debt of fifteen millions of dollars. They have become a nauseous dose to the people. The waters of Datchet Mead were not more odious to Sir John Falstaff.

AGRICOLA.

*Eastern Shore, Md., April* 12, 1841.

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## THE COTTON GIN. AMERICAN INVENTIONS.

From the Baltimore American.

An article in a late number of Hunt's Merchant's Magazine gives a brief history of the cotton plant and of its rapidly extended cultivation in the United States.

The state of Georgia, it appears, was the first in the Union to begin the cultivation of cotton. The plant itself was indigenous to this continent, and cotton fabrics were worn very generally by the Mexicans at the time of the invasion of that country by Cortez. But the culture of cotton did not become general in any of the North American colonies while they remained subject to Great Britain. The first exportation of the article took place in 1784, eight bags having been sent to London. This small lot was seized by the British custom house officers under the belief that cotton was not a product of the United States.

The inventions of Arkwright, Watt, and others, by which machinery and steam power were applied to the manufacture of cotton, caused a new impulse to be given to the cultivation of the plant. But the invention of the cotton gin by Whitney, in this country, constitutes perhaps the most important era in the history of this useful commodity. Before that event the process of disengaging the seed from the fibre was altogether by hand, and of course very tedious. The planter was limited in the quantity of his crops by the necessity he was under of raising no more than he could prepare for market by the slow operation of picking out the seeds, one at a time.

When Whitney had constructed his first cotton gin, great excitement was produced among the planters as soon as a knowledge of the fact got abroad. The building in which he had secluded his machine to keep it secret until he could procure a patent was broken open by the people of the neighborhood, and the plan of the invention ascertained. It was in Georgia that the first model was made, and very soon machines copied from it were in operation throughout the state. Whitney resorted to litigation to recover his just rights; but he found it very difficult to prove that his machine had ever been used in Georgia, although the clatter of some of them could be

heard in the court house where the suit was pending!

When Arkwright set his spinning frame in operation, the populace broke into his establishment to destroy it. They wished to prevent its introduction and use, under the idea that it would throw manual operatives under the old system out of employment. In Whitney's case similar violence occurred—but the object of it was not to destroy, but to multiply and perpetuate the happy invention which promised to substitute the labor of machinery for the labor of human hands.

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### ON THE USE OF NITRATE OF SODA AS MANURE.

From the London Farmers' Magazine.

In the year 1840, being determined to follow up my experiments more minutely, and also to prove or disprove an objection which had been started against the use of nitrate, to the effect that it was an impoverisher of land, or at best a stimulant to inert tillages—I again tried it on a rood out of the centre of the acre which I had sown with nitrate in 1839, on the thin *scopy* gravel land, and manured the remainder of the field with an excellent dressing of good manure, say 20 yards per acre. The nitrate was put on at the rate of 2 cwt. per acre. The manure was got on and well dressed in early in the season—the nitrate was put on the first of May. On the eighth day of May, no rain having fallen from the time of sowing the nitrate, I was walking past the field with an old experienced farmer, (Mr. T. Jennings,) who had that season retired from agricultural pursuits with the strongest prejudice against the use of such a slight and *new-fangled* dressing, when I directed his attention to the field, and inquired if he could perceive any difference in the appearance of the grass; when, knowing I had used nitrate in the field, he replied, No. I then directed his attention to a part of the field farther from us, and his observation was that I wan'ed him to see my land on which the nitrate had been used, and say that it had the advantage over the manure, but that he was not to be caught; for if there were a part of the field looking better than the rest, it was a small plot in a contrary direction. I desired him to point it out, and he directed me to the nitrate. I informed him the nitrate had been used there, but he would not be satisfied until we had been into the field, and found the larger particles of nitrate still undissolved on the surface, when from that time until the time of cutting the grass and storing the hay, he was a constant visiter and observant watcher over the nitrate, and he assisted me in measuring 64 square yards out of the nitrate piece, and an equal quantity out of the best of the manured land, and when weighed green gave the following result:—Grass cut 26th day of June—weight of grass from 64 yards of nitrate land, 338 lbs.; ditto from 64 yards of manured land, 252lbs.; being rather more than one-fourth in favor of the nitrate. Anxious to know whether the grass grown by nitrate was more succulent than the other, I had both pieces made as dry as possible, put into two small cocks, and covered with thatch. On the 14th of July, or eighteen days from the time of cutting, the day being fine, I had the cocks broken out under my own superintendence, and exposed them to the wind and sun until evening, when I had them weighed, and found the nitrate grass wasted from 338 lbs. to 88 lbs., being little more than one-fourth the original weight; and the manured grass from 252 lbs. to 66 lbs., being also little more than one-fourth the original weight. Having done this, I found no great difference in the waste of one lot over the other, but I gained the knowledge that the nitrate hay was neither more nor less than 1 qr. heavier than the manured hay. Weight per acre from manure, supposing the whole as good as was the trial piece, 2 tons, 4 cwt., 2 qrs. 7 lb.; and from nitrate, 2 tons, 19 cwt., 1 qr. 19 lb. The above is the last of my experiments; and so fully am I satisfied with the success of my own trials, that this season (1841) I shall use nitrate of soda on 20 acres of grass land, and would recommend such of my friends and the public generally, to whom a cheap dressing is of any consequence, not to be carried away by any thing that I have written on the subject into an extravagant use of this, in my humble opinion, wonderful *fetilizer*; but first test it on a small scale, and if found to answer, it will then be for them to choose whether they will use or refuse its assistance."

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### VEGETABLE AND ANIMAL NUTRITION.

Being the substance of a lecture delivered by Mr. James Allen Ransome, at the Royal Victoria Gallery, Manchester.

Mr. Ransome commenced by stating, that at the last meeting, in introducing the subject of vegetable and animal nutrition, he had alluded in general terms to the nature of the materials employed as elements, or as engaged in the first processes of nutrition. He had remarked, that man, although an omnivorous animal, was yet ultimately dependent upon the vegetable kingdom for his nutriment; for the flesh meat he took as food derived its nutriment from the vegetable creation; so that man is dependent, directly or indirectly, upon the vegetable kingdom, for the materials which constitute the aliment from which his own frame is to be formed. This, then, led to the consideration of the materials composing the vegetable kingdom; and he had shown experimentally, that a simple vegetable product—sugar—contained three elements in a state of combination—carbon, oxygen, and hydrogen, which were the three principal elements entering into the composition of vegetables. But he had prepared them to look for other elements, in order to complete the series. They next considered from what sources these respective elements were derived; and after a short review of the notion that carbon, their principal constituent, was derived from *humus*, or, as it was also called, *humin*, or *humic acid*, he had ventured, on the authority of Professor Liebig, the celebrated German chemist, to show that much doubt might be entertained on this subject, and that it was more reasonable to suppose that, instead of carbon being derived from *humus*, it was derived from one of the constituents of the atmosphere, for carbonic acid was found to constitute one-thousandth part of the weight of the

air. From experiments which bore some analogy to the process of vegetation, he had shown that a much greater weight was taken up by chemical substances, having an affinity for carbonic acid, than was required for plants growing in the same time; without denying the use of *humus*, or the ingredient constituting vegetable mould, which exists in almost all good soils. In connexion with the subject, he had shown, that, if we examine the constitution of plants, we shall find almost every one of their elements, such as woody fibre (*lignin*,) starch, sugar, tannic and tartaric acids, and the essential oils, contain less oxygen than carbonic acid, with which the air furnishes them; and, consequently, that, in the act of taking them in, oxygen must be given out. He had mentioned this, in reference to the main question—the maintenance of the purity of the atmosphere, for if we suppose, from the respiration of man and animals, and the combustion of immense quantities of carbonaceous matter (amounting, perhaps, to thousands of tons in this town alone,) that the quantity of carbon in the atmosphere had gone on increasing, and that of oxygen decreasing, and that thus, after a given time, the materials of which the atmosphere is composed would become unfit for the support of life—we should see that, by this beautiful arrangement, the decomposition of carbon and the giving out of oxygen, the purity of the air was constantly maintained; and that the direction given to the winds by different temperatures also tended to equalize the purity as well as the temperature of the air throughout the globe. He had shown, that we need not look very far for the sources of hydrogen and oxygen, inasmuch as oxygen might be taken in as a constituent of the air, or might exist as a constituent of water, in combination with hydrogen, and hydrogen is necessarily taken in from the water, which is abundantly provided for plants both in rain and in the dews which occur in the absence of rain. We will now (continued Mr. Ransome) proceed to a consideration of what other materials are found to be contained in plants, and, in fact, found to be essential to their growth. But we have still one other substance to rank with those already considered—nitrogen or azote, the fourth principal element of plants. Some are disposed to think that this does not enter materially into the composition of a plant, except in the case of some poisonous plants, or those which possess strong medicinal qualities; but a few words only are necessary to show that, unless plants did contain this element, animals could not derive much nutriment from them. It has long been known, that if dogs are fed upon pure sugar, which is acknowledged to be nutritive when mixed with other things, they fall into a kind of consumption, lose flesh and strength, and ultimately die with symptoms of emaciation and decline. Sugar is one of those substances which contains no azote or nitrogen. On the other hand, we have whole tribes of men and animals who live upon nothing but vegetables; yet the bulk of their muscle or flesh contains a large proportion of azote. Whence can that be derived, unless the food they take contains a large portion of it, or we consider man as possessing the power to assimilate the gaseous elements around him? But the fact is, they do not take in azote from the atmosphere, and they would die unless they were provided with something as an aliment containing azote. We shall see that, although sugar and starch exist in the leaves of plants, yet every particle is surrounded by a thin lamina, of a substance which contains azote, and it is owing to this that many changes take place spontaneously, or by means of the root. The simple operation of fermentation takes place from the gluten, which contains a quantity of azote, reacting upon the sugar which it invests; and we shall see many instances in which chemical changes are effected through the instrumentality of the azotous principle which accompanies the other more truly vegetable principle. A computation was made by Boussingualt, a French chemist, that hay contains one hundredth part of its weight of azote. Hence we see the source of the nutriment of cattle fed on grass. Wheat contains even a larger quantity; and, in proportion to the nutritious quality of the wheat, shall we find the greater quantity of azote. And upon this depends the practical application of chemistry to the art of culture,—viz. the providing a plant with substances which will give out azote to it; for such is the difference in wheat, that some only contains $3\frac{1}{2}$ per cent. of gluten, whereas other wheat, provided by the care and foresight of the farmer, with proper composts, has this quantity of $3\frac{1}{2}$ per cent. of gluten increased tenfold, or to 35 per cent. We also find, that if a horse, for example, be fed upon potatoes (which it will eat readily enough,) it is unfit for its work, and loses strength, and spirit; because the potato is a plant which contains but little azote. In the East Indies people live very much upon rice, which contains but little azote; and, in order to get a fair proportion of this principle, they have to take a larger quantity of food. It is singular enough, that one of the articles in daily use in most families should be a substance containing a large quantity of azote—viz., coffee. The *cafine*, or active principle of coffee, contains more azote than almost any other known body. I was in hopes to have exhibited before you this evening a few proofs that some plants contain azote; but unfortunately it has very intractable qualities; and, though it would put out a light, it would not display any very active properties. The form in which it is best known in combination is that of ammonia, or the gas which is the pungent element of the salts contained in the smelling bottle.

Ammonia is known to contain a certain proportion of azote, represented by the formula $N^1, H^3$, or one proportion of nitrogen or azote, with three proportions of hydrogen; and these two, combined in these proportions, constitute ammoniacal gas. This gas is formed under many circumstances, in the decomposition of vegetable and animal substances, and in the elimination of hydrogen: and therefore we may naturally expect, that, from the immense masses of putrifying matter upon the surface of the earth, the relics of former generations, ammonia must be given out, into the atmosphere. Most of us were struck with the very small proportion of carbon or carbonic acid found in the air, only one-thousandth part of its bulk; yet I showed you also, that when coral reefs are formed in the ocean by myriads of animalcula, these little animals contrive to abstract from the water sufficient carbonate of lime, to form future islands; and yet the quantity of lime in sea-water

amounts to only the 12,400th part of its bulk, and iodine is contained in salt water in the proportion of one millionth. The air itself contains 79 per cent. of free azote, about 21 per cent. of oxygen, and one-thousandth of cabonic acid; but, unless we provide azote for plants in some other form than that in which it exists in the atmosphere, it is useless. That form is ammonia; and in that form we must look for it in the air, as required for plants. If we take a jar full of atmospheric air, and look for ammonia in it, most of us will be disappointed, the quantity exists in so small a proportion.. By recent calculations, Liebig found that every cubic foot of air contains only a quarter of a grain of ammonia: Liebig has, however, found it in the air. Ammonia is a highly volatile substance, at an ordinary temperature existing as a vapor; but if that vapor comes in contact with water, the water absorbs it so rapidly as almost to produce an explosion. Liebig conceived the idea, that if we wish to search for ammonia, we must look for it in the water which falls from the air, and by so doing has found it, as I have done, by repeating his experiments. Liebig took 100 gallons of rain water; he applied heat, and distilled over four or five pints; he saturated it with acid, so as to fix the ammonia; evaporated it, and it left crystallized muriate of ammonia. It appears, however, that our air in Manchester is rich in ammonia; for instead of 100 gallons, we had only to use 10 gallons; and from the first pint distilled, Mr. Neild and I succeeded in procuring this quantity of ammonia [exhibiting a quantity crystalized in a glass]. It is natural to expect, where so much coal is burned, and where there is so large an accumulation of human beings, that if ammonia is to be found at all, it is in Manchester. We see, therefore, that the atmosphere will provide for plants a quantity of ammonia, and so small as is the quantity entering into the composition of a plant, it is sufficient for the developement of those principles which are requisite to the nutrition of the plant. If one pound of rain water contains only a quarter of a grain of ammonia, then a field, having an area of 14,000 square feet, must receive annually upwards of 80lbs. of ammonia, or 65lbs. of nitrogen. This is much more nitrogen than is contained in the form of *albumen* or *gluten*, in 2,650 lbs. of wood, in 2,800lbs. of hay, or in 200 cwt. of beet-root, which are the usual products of that surface. It also happens, that the quantity of ammonia thus brought down by rain, after a drought, is larger than ordinary. In summer, a thunder shower after a drought is very likely to bring down, in the first part of the shower, a large proportion of ammonia. Liebig took different portions of strata of snow, and found the larger proportion of ammonia in the lowest stratum, which of course fell first. The sensation of greater hardness in rain water (felt on washing the hands) than in distilled water, is owing to the quantity of ammonia which rain water contains as compared with distilled water. We have next to consider how this ammonia appears in plants, or whether it appears at all. Of this there is abundant evidence presented in the evaporation of the juice taken from the stem of the maple tree, which is generally saturated with lime, for the purpose of throwing down the gluten it contains, and the presence of the lime causes a disengagement of the gaseous ammonia sensible to all about. In the manufactories of maple and beet root sugar, this escape of ammonia is very strikingly experienced; indeed this circumstance is one of very serious loss to the beet-root sugar manufacturer; for the ammonia given off, leaves behind it an acid salt which prevents the sugar crystallizing, and causes considerable loss by reducing the sugar to a treacly state, in which only a portion, instead of the whole, can crystallize. The products of the distillation of flowers, herbs, and roots, with water, and all the extracts of plants for medicinal purposes, contain ammonia. The tobacco leaf contains ammoniacal juice; the juice of the cut vine also gives off ammonia. In connexion with these facts, we may allude to some articles which the farmer employs to increase the fertility of his land. Most of the composts used are rich in nitrogen, particularly bone-dust, crushed bones, and the shavings of horn, being parts of dead animals; but there are also other substances, which, when thrown over the field, increase its fertility, simply because they combine with the ammonia which comes down in rain water, and deprive it of its azote. Gypsum, or the sulphate of lime, is extensively used, and, when applied to a meadow exposed to alternations of wet and dry weather, causes it to produce abundantly; but it is found not to answer upon a dry meadow; and the reason is, that when rain falls, if carbonate of ammonia exists in the air, and comes into contact with gypsum, it is converted into carbonate of lime, and the ammonia is disengaged and absorbed into the soil. The next shower dissolves a portion of it, which passes down to the root of the plant, and is assimilated by the plant itself. Many soils contain ammonia. If you take a piece of common pipe-clay, and moisten it with a strong alkali, you perceive at once a smell of ammonia given off which will even continue for a couple of days. Other aluminous earths retain ammonia. Burned clay is often used by farmers to apply to their land; and burned clay is now found to absorb and retain ammonia. The ferruginous earths (those which contain an oxide of iron) also retain ammonia; and one of the most solid of these oxides, the *hematite*, or red oxide of iron, a stone, contains one per cent. of this gaseous principle. It is from these facts—now for the first time explained by Liebig—that the materials used by the farmers prove beneficial in their application to the land. *Humus* is a spongy body, which absorbs ammoniacal gas to a considerable extent; and, with every shower of rain, it gives it out to be taken up by the roots of the plants. Plants, then, derive their nourishment from carbonic acid, ammonia, and water; these being the principal sources from which plants derive the greatest part of their bulk and weight. The plan assimilates to itself these respective elements from carbonic acid, ammonia, and water. In the decay of plants, these elements float to other plants, are again assimilated by them, and thus the destruction of one generation of plants furnishes the materials out of which another is to be formed. The intermediate processes are obscure; but still lights are to be thrown upon them, by analogy, which may form the subject of another communication. Let us now consider what other materials we find in plants. If a plant consisted

merely of the elements mentioned, it would vaporize, be entirely dissipated, and nothing would be left; but very few plants will do this. Some of the elements of plants will do it, as starch, sugar, and the essential oils; but generally we find, that after the burning away of a plant, there is an ash left. In coals, which are but vegetables transformed, we find the value of the coal depends upon the greater or less quantity of ashes left; and this ash we will term the inorganic principle of vegetables. This consists of potash, soda, lime, magnesia, some of the metallic oxides, phosphoric, sulphuric, and other acids, chlorine, iodine, and I need hardly enumerate them all; but there are a number of fixed elements, capable of existing in a solid form, unalterable and unchangeable by heat. (He exhibited a quantity of ashes obtained from burning six ears of corn, after thrashing, and without the wheat; in addition to a quantity of soluble matter, which had been dissolved.) In reading the works of the older physiologists, we meet the statement, "Such a plant contains a little soda and a little magnesia," without specifying proportions, or any stress being laid upon the fact. But more accurate investigations have shown, that there are certain relative proportions between the quantity of these fixed materials and the plant itself; that, in proportion as these exist in the soil or the plant, its developement is more or less perfect. If a farmer attempt to grow wheat on a soil containing neither flint nor potash, he may get wheat, but it will not stand, the stems will not support it; because the stalk of wheat contains a species of glass—silex in combination with potass. He would have nothing in the ear, unless the soil were provided with a salt called the phosphate of magnesia and ammonia. This has been tried in the mosses,* which contain *humus* enough, but without the addition of some compost they never bear. In the tribe of plants called *equisetaceæ*, the stem contains large quantities of *silica*. The Dutch rush contains so much that it is used for the purpose of polishing; and it is found in large quantities in some tropical plants. The bamboo in some of the joints contains absolute nodules of a substance consisting of 70 per cent. of silica, and 30 per cent. of potash. How came they there? There has been some controversy upon this subject among chemists; and one analysis has been made to show, that it could not be a permanent proportion, inasmuch as two pine trees, which grew in different situations, contained different proportions. Liebig took these analyses, compared them together, and then introduced—triumphantly I think—the principle of equivalents, laid down by our venerable townsman, Dr. Dalton, showing that although the quantities appear very dissimilar, yet in their proportions they are exactly the same, although the data were taken from a hostile source. Two pine trees were taken, one growing on Mont Breven, and the other on Mont La Salle. The first contained potash, lime, and magnesia, and the sum of the carbonates of these amounted to 56.71 per cent. in the ashes; whilst those of the pine grown on Mont La Salle contained 58.55 of these carbonates; but this latter contained only potash and lime. In the first the quantities were carbonate of potash 3.60, carbonate of lime 46.34, carbonate of magnesia 6.77; in the second carbonate of potash 7.36, carbonate of lime 51.19. So that the one containing no magnesia contained more lime and more potash; and when we examine the equivalents—the proportions required to neutralize an acid—we find them in the one to amount to 9.01, in the other to 8.95, being a difference of only .06 (six hundredths,) a difference of weight which few scales would detect. Liebig took another analysis in which the disproportions are much greater. He took two fir-trees, one growing in Norway, and the other at Allevard, in France. That in France contained potash, soda, lime, and magnesia; the sum of these carbonates was 49.5; while that of the carbonates found in the fir grown in Norway was 51.45; yet these, when reduced to the equivalents in which they combine with acids, were found to be 11.62 and 11.47; from which result Liebig is disposed to infer, that the presence of these elements is not accidental; but that they form a certain proportion, and enter into that proportion in the ratio of their equivalents. Now from what sources are these matters derived? Take a sandy heath, which contains, to all appearance, nothing but sand, and where the most expert analyst will detect nothing else; no *humus* whatever, and, if you attempt to grow wheat upon this heath, there will be no crop. But, if on this heath plants are grown which require but little of the inorganic principle, and these are destroyed either by decay or combustion it is found in practice that the heath acquires fertility. Take, for example, the Luneberg Heath, in Germany, which is covered with heath-plants generally, especially the *erica vulgaris*. Every thirty or forty years the practice is to burn down all the vegetable growth on the surface, to let the ashes sink into the ground, and then to sow wheat; and thus these plants, which have, for the space of forty years, been constantly collecting a little of these elements, when burned, contained in their ashes the product of that number of years' growth; which, when returned into the soil, is sufficient for one crop of plants which require a good large proportion of these elements. In the neighborhood of Heidelberg, one of the perquisites of the woodcutters, after felling and clearing timber, is to be allowed to burn the roots, stumps, twigs, and leaves, and to raise one year's produce from the ground. They do so, and get one good crop; for, whatever the trees and plants collect goes on accumulating, and then, by destroying the carbonaceous parts by fire, the inorganic products are returned to the soil, and provide for one year's growth of wheat. Does not this show us what is meant by exhausting a soil? If wheat is grown year after year on the same soil, it is found that the crop becomes less and less productive. And why? Because, with every crop of wheat, so much of the inorganic elements is removed or taken away from the ground; therefore, in order to allow this ground to recover these inorganic elements, it is necessary to resort either to the now exploded (?) system of allowing it to remain fallow, or to a rotation of crops; which, we shall show, will furnish ground with potash and lime. But how does a soil happen to contain potash originally? All soils are formed from the disintegration of the harder rocks; they gradually accumulate in the

* Peat soils.—Ed. F. R.

lower parts of the country, being brought down by floods and other causes. We must look, then, to the composition of the rocks themselves. Suppose of each of these which I will enumerate, a field of 40,000 square feet (a Hessian acre) of surface, with a depth of twenty inches, were decomposed, the quantity of potash we might expect to find would be:—In felspar, 1,152,000lb.; in clinkstone, 200,000lb. to 400,000lb.; in basalt, 47,500lb. to 75,000lb.; in clay slate, 100,000lb. to 200,000lb.; and in loam, from 87,000lb. to 300,000lb. We also find, that the aluminous or clay earths, contain a large proportion of potash; for we can obtain it not only from pure felspar, but from the granites. The potash these contain is not washed away by every shower of rain; for clay is a very impervious sort of material; and therefore, though the surface may be washed away, the interior still contains a large proportion. Wherever water penetrates, there the soil gives off its potash to the water, and this will be taken up by the *spongioles* of the roots of plants. A single cubic foot of felspar, if decomposed in clay, is sufficient to supply wood of 40,000 square feet, with the quantity of potash necessary for the growth of timber upon it, for five years. Do we not, then, see the use of many of the composts now introduced upon the land? The very dirt collected upon our roads must contain quantities of potash. The gritty portions of this dirt undergo decomposition; it is reduced to the finest powder, and, from exposure to air and moisture, undergoes disintegration; and by this means an abundant supply of potash may be obtained. How does the earth, after being exhausted by the growth of plants, recover itself by lying fallow? It has the double advantage of not only having its *humus* exposed to the air, and converted into a sort of sponge; but the inorganic materials are still further decomposed by the action of the air, and thus become ready to furnish to the next crop the quantity of alkali required. We see that where silica is required as an ingredient in the portions of a plant, it is necessary that potash should exist with it, to render it in some degree soluble. Thus the hard part of the bamboo, and the stalk of wheat, which contains silica, have it accompained with potash, which assists the silica to enter into a state capable of being assimilated to the plant. There is another beautiful provision in plants, for taking up some of the more insoluble elements, viz., that in one class of plants, the *gramineæ*, an acid is given out as an excretion from the roots, producting an acetic fluid, which, entering into combination with alkaline earth, forms soluble elements, and allows them to be taken up by the *spongioles*, and reduces them to a state of assimilation. Plants growing there will assist in the disintegration of rocks more than mere weather will do. But suppose a soil pretty rich in potash, and that the farmer is misled by the desire of making the most of his land in a short time. He grows upon that land plants, which, when they attain their proper growth, are removed from the land, burned, and sold for potash —an article greatly in demand. The plant generally selected for this purpose is the *artemisia*, or wormwood; if he grows it and sells the ashes, and the next year thinks he will have a crop of wheat, he will be disappointed; for he has taken from the soil that very material which is essential to the welfare of his wheat the following year. Again, it is essential to the farmer to know which of his crops take out the most of this principle, as contained in potash, lime, or magnesia. Tobacco and wheat require pretty much the same proportion of potash at one period of their growth. If the farmer attempts to cultivate the one after the other, the result will be pretty much the same as if he tried to grow two crops of the same plant, in two succeeding years. It would seem from this, if the view taken by Liebig be correct, that it is important the farmer should always know what are the inorganic elements contained in the crops he wishes to have; for these must either be found in, or supplied to the soil; they cannot exist in the atmosphere. He ought next to examine his soil, and see if it contains them. If not, they must be added. Upon this, it seems to me, the important principles of agriculture depend. It is not necessary that each farmer should be himself an analyst; but a number of farmers might unite to procure the services of one; and it is certain that success would follow the application of these principles. The quantity of inorganic elements required by the plant in 100 parts of the stalk of wheat, are 15.5 of ashes. In the same quantity of the dry stalks of barley, 8,54; in 100 parts of the stalk of oats, 4,42; and thus we see, that the same field that yields only one harvest of wheat, might be made to produce two crops of barley, or three of oats, year after year. The illustration of the practice at Heidelberg, of allowing the woodcutters to burn the timber on the ground, will also show how land, which has been covered by forests for years, will, when the forest is consumed, become abundantly fertile. It is owing to this, that the trees themselves require but little alkali in proportion to the grasses; they have been assimilating this for years, and, when they are destroyed by decay or combustion, that ground is abundantly supplied with inorganic products necessary for a crop, and also with a fair proportion of vegetable soil. The common practice with farmers in the rotation of crops is to follow grass with *leguminosæ*, which class of plants contains no free alkali, and only 1 per cent. of the phosphates of lime and magnesia; buck-wheat contains only .09 per cent. These belong to the fallow crops; and the cause they do not exercise any injurious influence on the land cultivated is, that they do not extract the alkalies from the soil, and only a very small proportion of the phosphates. Now, is there not something in all this deserving the attention of agriculturists? They have hitherto gone on blindly; they have arrived at a certain state of knowledge from experience, and it so far a useful guide; but are they possessed of sufficient knowledge of facts connected with this important subject to form a principle and rule, in reference to crops and soils of various kinds, and the order of succession? And when we find a work published by a celebrated organic chemist, Dr. Liebig, in which these principles are developed for the first time in Europe, are they not, I ask, highly deserving the attention of agriculturists? They not only apply to all the articles of our daily food, but to the articles of raw produce which we consume in our manufactures; and, in fact, it seems that culture is not only useful, as supplying our animal wants, but also to lay the foundation of the prosperity of states, particularly of those engaged in

commercial enterprise; and therefore, in the speculations now afloat as to the transfer of the products of one part of the earth to another, it is important to set at rest or establish the principle upon which this must be effected. I do not stand here in order to defend the principles of Liebig, but shall be glad to listen to the experience which any gentleman here has to offer; assuring you, that I have at least as much pleasure in listening to others as in hearing myself.

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### ON DESTROYING RATS.

From the London Farmers' Magazine.

*Sir*,—The following is a reply to your correspondent's inquiry as to the best mode of destroying rats. Should he find either of these methods succeed, he will oblige by a reply through your paper.

1st—Corks, cut as thin as sixpences, roasted or stewed in grease, and placed in their tracks.

or—Dried sponge in small pieces, fried or dipped in honey, with a little oil of rhodium.

or—Bird-lime, laid in their haunts, will stick to their fur, and cause their departure.

If a live rat be caught, and well rubbed or brushed over with tar and train-oil, and afterwards put to escape in the holes of others, they will disappear.

Poisoning is a very dangerous and objectionable mode. If any of your chemical readers could suggest any very pungent *smell*, procurable from substances resembling *garlic* or *asafætida*, this might be of great use, as this animal has an extraordinary fineness or susceptibility of scent: witness its extreme predilection for oil of rhodium, &c. I consider your correspondent's query a very important one, and it is surprising that the attention of farmers and others concerned in the removal of these vermin, has in this age of discovery been so little drawn to the subject; more particularly so, as the newspapers present so many recent instances of attacks made by these creatures on infants, &c.

I really think the matter more deserving of notice than has hitherto been given to it; and, apologizing for the present intrusion, I remain, yours very truly,

A CONSTANT SUBSCRIBER.

*Bristol, March* 10.

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### ACTION OF LEAVES.

Their nature, structure, veins, epidermis, stomates.—Effect of light.—Digestion or decomposition of carbonic acid.—Insensible perspiration.—Formation of secretions.—Fall of the leaf.—Formation of buds by leaves.

From Lindley's Horticulture.

A leaf is an appendage of the stem of a plant, having one or more leaf-buds in its axil. In those cases where no buds are visible in the axil, they are, nevertheless, present, although latent, and may be brought into developement by favorable circumstances. As this is a universal property of leaves, to which there is no known exception, it follows that all the modifications of leaves, such as scales, hooks, tendrils, &c., and even the floral organs, hereafter to be described, have the same property.

Considered with respect to its anatomical structure, a leaf is an expansion of the bark, consisting of cellular substance, among which are distributed veins. The former is an expansion of the rind; the latter consist of woody matter arising from the neighborhood of the pith, and from the liber. As the tissue forming veins has a double origin, it is arranged in two layers, united firmly during life, but separable after death, as may be seen in leaves that have been lying for some time in water. Of these layers, one is superior and arises from the neighborhood of the pith, the other inferior and arises from the liber; the former maintains a connexion between the wood and leaf; the latter establishes a communication with the bark. As sap, or ascending fluid, rises through the wood, and principally the alburnum, afterwards descending through the liber, it follows from what has been stated, that a leaf is an organ of which the upper system of veins is in communication with the ascending, and the lower system with the descending current of sap.

A leaf has moreover a skin, or epidermis, drawn all over it. This epidermis is often separable, and is composed of an infinite number of minute cavities, originally filled with fluid, but eventually dry and filled with air. In plants growing naturally in damp or shady places it is very thin; in others, inhabiting hot, dry, exposed situations, it is very hard and thick; and its texture varies between the two extremes, according to the nature of the species. The epidermis is pierced by numerous invisible pores, called stomates, through which the plant breathes and perspires. Such stomates are generally largest and most abundant in plants which inhabit damp and shady places, and which are able to procure at all times an abundance of liquid food; they are fewest and least active under the opposite conditions. It will be obvious, that, in both these cases, the structure of a leaf is adapted to the peculiar circumstances under which the plant to which it belongs naturally grows. Now, as this structure is capable of being ascertained by actual inspection with a microscope, it follows, as a necessary consequence, that the natural habits of an unknown plant may be judged of with considerable certainty by a microscopical examination of the structure of its epidermis. The rule will evidently be, that plants with a thick epidermis, and only a few small stomates, will be the inhabitants of situations where the air is dry and the supply of liquid food extremely small; while those with a thin epidermis, and a great number of large stomates, will belong to a climate damp and humid; and intermediate degrees of structure will indicate intermediate degrees of atmospherical and terrestrial conditions. It is however, to be observed, that the relative *size* of stomates is often a more important mark in investigations of this nature than their *number*; those organs being in many plants extremely numerous, but small and apparently capable of action in a very limited degree; while in others, where they are much less numerous, they are large and obviously very active organs. Thus the number of stomates in a square inch of the epidermis of Crinum amabile is estimated at

40,000, and in that of Mesembryanthenum at 70,000, and of an Aloe at 45,000; the first inhabiting the damp ditches of India, the last two natives of the dry rocks of the Cape of Good Hope: but the stomates of Crinum amabile are among the largest that are known, and those of Mesembryanthenum and Aloe are among the smallest; so that the 70,000 of the former are not equal to 10,000 of the Crinum. Again, the Yucca aloifolia has four times as many stomates as a species of Cotyledon in my collection, but those of the latter are about the $\frac{1}{750}$ of an inch in their longer diameter, large and active, while the stomates of the Yucca are not more than $\frac{1}{2500}$ of an inch long in the aperture, and comparatively inert. The Yucca, therefore, with its numerous stomates, has weaker powers of perspiration and respiration than the Cotyledon.

A leaf, then, is an appendage of the stem of a plant, consisting of an expansion of the cellular rind, into which veins are introduced, and enclosed in a skin through which respiration and perspiration take place. It is in reality a natural contrivance for exposing a large surface to the influence of external agents, by whose assistance the crude sap contained in the stem is altered and rendered suitable to the particular wants of the species, and for returning into the general circulation the fluids in their matured condition. In a word, the leaf of a plant is its lungs and stomach, traversed by a system of veins.

As the leaf is an extension of the rind of a stem, its epidermis is also an extension of the skin of the same part; and hence it is that in plants which produce no true leaves,* such as the Stapelia, the office of the leaf is performed by the rind and epidermis of the bark.

The functions of respiration, perspiration, and digestion, which are the particular offices of leaves, are essential to the health of a plant; its healthiness being in proportion to the degree in which these functions are duly performed. Consequently, whatever tends to impede the free action of leaves, tends also to diminish the healthiness of a plant.

These functions are performed by means of the vital forces of vegetation, which we cannot estimate or comprehend, assisted by the influence of an external agent, the nature of whose action may be understood from its effects. That agent is solar light.

It is the property of solar light, when striking upon the leaf of a plant, to cause: 1. A decomposition of carbonic acid; 2. An extrication of nitrogen; and, 3. Insensible perspiration. By their vital forces plants appear to decompose water, independently of the action of light.

Carbonic acid is originally introduced into the interior of a plant, either dissolved in the water it imbibes by its roots, or by attraction from the atmosphere, or by the combination of the oxygen obtained by a decomposition of water or otherwise, with the carbon in its interior. When a leaf is exposed to the direct influence of the sun, it gives off oxygen, by decomposing the carbonic acid; whereupon the carbon remains behind in the interior of the leaf in a solid state.* Although the nature of the air thus extricated can only be determined by a chemist, yet the extrication itself can be easily seen by any one who will plunge a leaf in water and expose it to the sun; for bubbles of oxygen will be seen to form themselves upon the surface of the leaf. But, if the same leaf be observed in the total absence of solar light, there will be little or no extrication of air, and what little is given off will be found to be carbonic acid, which plants exhale at all times in small quantities; oxygen, however, which was before expelled, is inhaled. Hence plants decompose carbonic acid during the day, and form it again during the night, the oxygen they inhale at that time entering again into combination with their carbon; and, during the healthy state of a plant, the decomposition by day, and recomposition by night, of this gaseous matter, is perpetually going on.* The quantity of

* [It remains behind, not in the state of *uncombined solid carbon*, or charcoal, as the reader unlearned in chemistry might suppose from the statement in the text, but as one of the chemical components of starch, sugar, gum, tartaric or malic acid, organic tissue, or other product of the plant, whether solid or liquid. A. G.]

* [This absorption of oxygen and recomposition of carbonic acid during the night, might perhaps be left out of the account in a general view of the subject, except as an explanation of the manner in which plants are injured or destroyed by the protracted absence of light. According to the celebrated chemist from whom the following remarks are cited, this process is not at all connected with the life or growth of vegetables, but is entirely chemical. "It is true that the decomposition of carbonic acid is arrested by the absence of light. But then, namely, at night, a true chemical process commences, in consequence of the action of the oxygen in the air upon the organic substances composing the leaves, blossoms, and fruit. . . The substances composing the leaves of different plants being known, it is a matter of the greatest ease and certainty to calculate which of them, during life, should absorb most oxygen by chemical action, when the influence of light is withdrawn. . . . Whilst the tasteless leaves of *Agave Americana* absorb only 0.3 of their volume of oxygen, in the dark, during 24 hours, the leaves of the *Pinus abies*, which contain volatile and resinous oils, absorb 10 times; those of *Quercus robur* containing tannic acid 14 times; and the balmy leaves of the *Populus alba* 21 times that quantity. This chemical action is shown very plainly, also, in the leaves of the *Cotyledon calycinum*, the *Cacalia ficoides*, and others; for they are sour, like sorrel, in the morning, tasteless at noon, and bitter in the evening. The formation of acids is effected during the night by a true process of oxidation: these are deprived of their acid properties during the day and evening, and are changed, by the separation of a part of their oxygen, into compounds containing oxygen and hydrogen either in the same proportions as in water, or even with an excess of hydrogen, which is the composition of all tasteless and bitter substances. . . . Most vegetable physiologists have connected the emission of carbonic acid during the night with the absorption of oxygen from the atmosphere; and have considered these actions as a true process of respiration in plants, similar to that of animals, and, like it, having for its result the separation of carbon from some of their constituents. This opinion has a very weak and unstable foundation. The carbonic acid, which has been absorbed by the leaves and by the roots, together with water, ceases to be decomposed on the departure of daylight. It is dissolved in the juices which pervade all parts of the plant, and escapes every moment through the leaves, in quantity corresponding to the water which evaporates. . . . Plants during their life constantly possess

carbonic acid decomposed is in proportion to the intensity of the light which strikes a leaf, the smallest amount being in shady places; and the healthiness of a plant is, *cæteris paribus*, in proportion to the quantity of carbonic acid decomposed; therefore, the healthiness of a plant should be in proportion to the quantity of light it receives by day.

68. But, while this is true as a general axiom, it is necessary to observe that some plants are naturally inhabitants of shady situations, and are so organized as to be fit for such places and for no others: plants of this description will not endure full exposure to the sun; not because an abundant decomposition of carbonic acid is otherwise than favorable to them, but because their epidermis allows the escape of water too freely by insensible perspiration, under the solar stimulus.

69. The mere fact of plants absorbing fluids from the earth, would render it probable that they have some means of parting with a portion of it by their surface; but that they do perspire is susceptible of direct proof, and is by no means a mere matter of inference.

70. We do not indeed see vapor flying off from the surface of plants; neither do we from that of animals, except when the air is so cold as to condense the vapor; yet we know that in both cases perspiration is perpetually going on, and it would appear that in plants it takes place more abundantly than in animals. If a plant covered with leaves is placed under a glass vessel, and exposed to the sun, the sides of the vessel are speedily covered with dew, produced by the condensation of the insensible perspiration of the plant. If the branch of a plant is placed in a bottle of water, and the neck of the bottle is luted to the branch, so that no evaporation can take place, nevertheless the water will disappear; and this can only happen from its having been abstracted by the branch which lost it again by insensible perspiration. Hales, an excellent observer, devised many experiments connected with this subject;* among others the following, which he relates thus:—"August 13. In the very dry year 1723, I dug down 2½ feet deep to the root of a thriving baking pear tree, and laying bare a root half an inch in diameter (*fig.* 7) I cut off the end of the root at *i*, and put the remaining stump (*i n*) into the glass tube *d r*, which was an inch in diameter, and eight inches long, cementing it fast at *r*; the lower part of the tube *d z* was eighteen inches long and a quarter of an inch diameter in bore. . . . Then I turned the lower end of the tube (*z*) uppermost, and filled it full of water, and then immediately immersed the small end *z* into the cistern of mercury at the bottom, taking away my finger which stopped up the end of the tube *z*. . . . . The root imbibed the water with so much vigor, that in six minutes' time the mercury was raised up the tube *d z* as high as *z*, namely, eight inches. . . . The next morning at eight o'clock the mercury was fallen to two inches in height, and two inches of the end of the root *i* were yet immersed in water. As the root imbibed the water, innumerable air bubbles issued out at *i*, which occupied the upper part of the tube at *r* as the water left it." On another occasion he planted a sunflower 3½ feet high in a garden pot, which he covered with thin milled lead, cementing all the joints so that no vapor could escape except through the sides of the pot and through the plant itself; but providing an aperture capable of being stopped, through which the earth in the pot could be watered. After fifteen days, viz., from July 3 to August 8, he found, upon making all necessary allowances for waste, that this sunflower plant 3½ feet high, with a surface of 5616 square inches above the ground, had perspired as follows:—

| | Ounces. Avoirdupois. |
|---|---|
| In twelve hours of a very dry warm day | 30, |
| On another day - - - - | 20, |
| In a dry warm night without dew - | 3, |
| In a night with some small dew - | 0; |

And that when the dew was copious, or there was rain during the night, the plant and pot were increased in weight two or three ounces. Other persons have instituted other experiments of a similar nature, the result of all which is, that the insensible perspiration of plants is very considerable.* Hales says his sunflower perspired seventeen times more than a man. There is, however, this important peculiarity in vegetable perspiration, that it takes place only or principally in sun-

the power of absorbing by their roots, moisture, and, along with it, air and carbonic acid. Is it, therefore, surprising that the carbonic acid should be returned unchanged to the atmosphere, along with water, when light (the cause of the fixation of its carbon) is absent? Neither this emission of carbonic acid nor the absorption of oxygen has any connexion with the process of assimilation; nor have they the slightest relation to one another; the one is a purely mechanical, the other a purely chemical process. A cotton wick, enclosed in a lamp which contains a liquid saturated with carbonic acid, acts exactly in the same manner as a living plant in the night. Water and carbonic acid are sucked up by capillary attraction, and both evaporate from the exterior part of the wick." *Liebig, Organic Chemistry in its applications to Agriculture and Physiology*, (London, 1840,) pp. 27—33, *passim*; a work which comprises a masterly view of the chemical phenomena of vegetation. A. G.]

* See Vegetable Statics, London, 1727.

* The amount of this force is strikingly illustrated by the following circumstances recorded by the late Mr. Braddick. "One experiment I will mention, as it may serve to show the great power of the rising sap in the vine, while its buds are breaking. On the 20th of March, in the middle of a warm day, I selected a strong seedling vine five years old, which grew in a well prepared soil, against a south-west wall; I took off its head horizontally with a clean cut, and immediately observed the sap rising rapidly through all the pores of the wood, from the centre to the bark. I wiped away the exuded moisture, and covered the wound with a piece of bladder, which I securely fastened with cement, and a strong binding of waxed twine. The bladder, although first drawn very close to the top of the shoot, soon began to stretch, and to rise like a ball over the wound; thus distended, and filled with the sap of the vine, it felt as hard as a cricket ball; and seemed, to all appearance, as if it would burst. I caused cold water from a well to be thrown on the roots of the plant; but neither this nor any other plan that I could devise, prevented the sap from flowing, which it continued to do with so much force as to burst the bladder in about forty-eight hours after the operation was performed; the weather continuing the whole time warm and genial.—*Hort. Trans.*, v. 202.)

light. The last experiment shows that, while the sunflower was losing from twenty to thirty ounces of water daily during the day, it lost only three ounces during the night without dew, and that there was no loss whatever if a slight dew were present. Here it is probable that the small amount which was lost at night was parted with by the sides of the garden pot, and that the plant itself lost nothing, for it is in evidence that the perspiration of plants is in proportion to the quantity of sunlight that strikes them, and that in darkness they perspire little or not at all.* It is no doubt true, that in a dry atmosphere plants will lose their water day and night; but it is equally certain that under such circumstances they will lose very much more by day than by night. They will, however, lose much more by day in a dry atmosphere in a given time, than they will in an atmosphere abounding in moisture.

71. Although perspiration thus appears to be principally excited by the solar rays, and to be in a given plant in proportion to their intensity, yet we are not authorized in concluding that perspiration is not increased or diminished by the medium in which a plant grows. Immersed in water, perspiration is necessarily arrested; in an ordinary atmosphere, it will be in proportion to the quantity of elastic vapor the atmosphere may contain; and it is probable, although there are no experiments upon the subject, that it is increased in proportion to the rarefaction of the air.

72. Since a plant does not perspire at night, and since its absorbing points, the roots, remain during that period in contact with the same humid medium as during the day, they will attract fluid into the system of the plant during the night, and, consequently, the weight of the individual will be increased, as Hales found to be the case. In like manner, if plants in the shade are abundantly supplied with moisture at the roots, they also will gain more than they can lose; and, as this will be a constant action, the result must necessarily be to render all their parts soft and watery.

73. It is evident, from what has been stated, that leaves must derive the food they digest from the earth through the medium of the roots; and that they, while alive, maintain a kind of perpetual sucking action upon the stem, which is communicated to the spongelets. That this must be of a very powerful nature is apparent from the fact, that the smallest leaf at the extremity of the branch of a lofty tree must assist in setting in action the absorbing power of roots, at a distance equal, perhaps, to three thousand times its own length. If this reciprocal action is not maintained without interruption, and if any thing occurs to check it during the period of vegetation, the plant will suffer in proportion to the amount of interruption. For example, if the roots are placed in a warmer medium than the branches, and are thus induced to absorb fluid faster than the slower action of the leaves can consume it, the superfluous sap will burst through the stem and distend its tissue till the excitability is impaired or destroyed. Or if, on the other hand, a branch is caused to grow in a warm medium, while the roots remain in a very cold medium, the former will consume the liquid sap faster than the latter can supply it, and the consequence will be, that the leaves will die, or the fruit will fall off, or the flowers be unable to set their fruit, from want of a constant and sufficient supply of food. Not that it is necessary for the temperature of the earth and air to be equal, for this does not happen in nature; but it is requisite that they should have some near relation to each other.

74. It is generally, however, believed, that leaves absorb fluid from the air; and their stomates appear well adapted for that purpose, by their position in most abundance on the under side of leaves; and the possibility of recovering drooping or sickly plants, by syringing their epidermis copiously, seems to render this fact almost certain.* It is, however, thought by some, that leaves have no power of absorbing water, even in an elastic state; and that the renovation of plants by syringing is owing to a diminution of perspiration.

75. It is to the action of leaves,—to the decomposition of their carbonic acid, and of their water; to the separation of the aqueous particles of the sap from the solid parts that were dissolved in it; to the deposition thus effected of various earthy and other substances, either introduced into plants, as silex and metallic salts, or formed there, as the vegetable alkaloids; to the extrication of nitrogen; and, probably, to other causes as yet unknown,—that the formation of the peculiar secretions of plants, of whatever kind, is owing. And this is brought about principally, if not exclusively, by the agency of light. Their green color becomes intense, in proportion to their expo-

* M. De Candolle distinguishes between *exhalaison* or perspiration, which is a vital action, *deperdition* or evaporation, which is merely physical. But the latter is too small in amount to be worth taking into account for practical purposes.

* Mr. Knight entertained the opinion, that water is sometimes absorbed by leaves to such an extent as to cause a *descent of the sap through the alburnum*; a derangement of function to which he even ascribed the attacks of mildew fungi upon plants. The secondary and immediate causes, he says, of this disease, and of its congeners, "have long appeared to me to be the want of a sufficient supply of moisture from the soil, with excess of humidity in the air, particularly if the plants be exposed to a temperature below that to which they have been accustomed. If damp and cold weather in July succeed that which has been warm and bright, without the intervention of sufficient rain to moisten the ground to some depth, the wheat crop is generally much injured by mildew. I suspect that in such cases an injurious absorption of moisture, by the leaves and stems of the wheat plants, takes place: and I have proved that under similar circumstances much water will be absorbed by the leaves of trees, and carried downwards through their alburnous substance; though it is certainly through this substance that the sap rises, under other circumstances. If a branch be taken from a tree when its leaves are mature, and one leaf be kept constantly wet, that leaf will absorb moisture, and supply another leaf below it upon the branch, even though all communication between them through the bark be intersected; and, if a similar absorption takes place in the straws of wheat, or the stems of other plants, and a retrograde motion of the fluids be produced, I conceive that the ascent of the true sap or organizable matter into the seed-vessels must be retarded, and that it may become the food of the parasitical plants, which then only may grow luxuriant and injurious." (*Hort. Trans.*, i. 86.)

sure to light within certain limits, and feeble, in proportion to their removal from it; till, in total and continued darkness, they are entirely destitute of green secretion, and become blanched or etiolated. The same result attends all their other secretions; timber, gum, sugar, acids, starch, oil, resins, odors, flavors, and all the numberless narcotic, acrid, aromatic, pungent, astringent, and other principles derived from the vegetable kingdom, are equally influenced, as to quantity and quality, by the amount of light to which the plants producing them have been exposed.

76. It is, however, to be observed that, as has already been stated (68), the capability of plants to bear the action of direct light varies according to their specific nature. One species is organized to suit the atmosphere of a dense wood, into which diffuse light only will penetrate; another is planted by nature on the exposed face of a sunburnt rock, upon which the rays of a shadeless sun are daily striking; in these cases, the light which is necessary to the one would be destructive of the other. The organic difference of such species seems to consist chiefly in the epidermis, which regulates the amount of perspiration (61). It is therefore to be remarked, that it is not the greatest quantity of light which can be obtained that is most favorable to the healthiness of plants, but the greatest quantity they will bear without injury. If the former were true, the concentrated light of a lens would be better than the strongest ordinary light; but the effect of the concentrated light of a lens is to burn the surface, and the ordinary solar rays produce the same effect upon many plants, probably by exhausting the tissue of its water faster than it can be supplied from the roots.

In the course of time, a leaf becomes incapable of performing its functions; its passages are choked up by the deposite of sedimentary matter; there is no longer a free communication between its parenchyma and that of the rind, or between its veins and the wood and liber. It changes color, ceases to decompose carbonic acid, absorbs oxygen instead, gets into a morbid condition, and dies: it is then thrown off. This phenomenon, which we call the *fall of the leaf*, is going on the whole year round, except mid-winter, in some plant or other. Those which lose the whole of their leaves at the approach of winter, and are called deciduous, begin, in fact, to cast their leaves within a few weeks after the commencement of their vernal growth; but the mass of their foliage is not rejected till late in the season. Those, on the other hand, which are named evergreens, part with their leaves much more slowly; retain them in health at the time when the leaves of other plants are perishing; and do not cast them till a new spring has commenced, when other trees are leafing, or even later. In the latter class, the functions of the leaves are going on during all the winter, although languidly; they are constantly attracting sap from the earth through the spongelets, and are, therefore, in a state of slow but continual winter-growth. It usually happens that the perspiratory organs of these plants are less active than in deciduous species.

78. In general, a leaf is an organ of digestion and respiration, and nothing more; some leaves have, however, the power of forming leaf-buds, if placed in or upon earth, under suitable circumstances. The Bryophyllum calycinum forms buds at the indentations of its margin; Malaxis paludosa throws off young buds from its margin; Tellima grandiflora occasionally buds at the margins of its leaves: the same thing happens to many ferns; and several other cases are known.

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## SOME REMARKS UPON THE DISEASE, CALLED THE "YELLOWS," WHICH ATTACKS THE PEACH TREE.

From the Magazine of Horticulture.

I have noticed occasional useful remarks on the best varieties and the culture of fruit trees in your valuable Magazine; but I have not, as yet, seen any remarks upon the disease called the *yellows*, which affects the peach tree, or reasons assigned for its prevalence. If the cause could be found out, it might lead to a cure, which would render a lasting benefit to our country. However valuable most other fruits are, none are equal to the peach in delicious flavor and healthiness, and I should therefore be pleased to see this subject carefully investigated, and the experience of some of your intelligent correspondents communicated through your pages.

And as I have, for about thirty years, occasionally had my attention drawn to this subject, I am willing to throw in my mite of experience. I am fully satisfied that the complaint exists. Some persons say that the worm at the root is the cause of the yellows. I acknowledge that any disorder that destroys the trees will cause the leaves to turn yellow, but the complaint I call the yellows will kill a whole orchard, without any visible wounds, on or before the third or fourth full crop. I think where any neighborhood abounds with peach orchards, it will be nearly impossible to keep clear of the disease.

On planting out young peach trees on the side of a peach nursery, two years after the nursery was removed, and although the ground was in other respects well suited for the growth of the peach tree, yet by the next autumn many of them were dead, and the balance so sickly that I had them all dug up, and there was no sign of the worm at the roots. From this, and other similar experiments, I think the disease may be generated by planting in or near where a nursery or orchard of peach trees has been, or where the latter is; consequently, where a neighborhood abounds with peach trees, there is danger of its becoming overspread with disease, without greater care than is usually taken to prevent it.

I think I have seen evidences of its being in some degree contagious. Richard Cromwell, the respectable and worthy peach raiser, near Baltimore, has for upwards of thirty years supplied that city with peaches of the best quality, on a large scale. Some time since, when I was walking with Mr. Cromwell through his peach orchard, when the trees were hanging full of ripe fruit, he pointed out a tree that he said had the yellows, having a full crop upon it, at that time worth one dollar per peck, and to me it appeared healthy; but he observed to me, "as soon as I take the fruit from the tree, I shall dig it up, in order to prevent the disease speading any farther,

for I expect the side of the adjoining trees next to it will be affected next season." I had occasion to pass through Mr. Cromwell's orchard the next fruiting time, and the sickly tree had been dug up, but, as had been predicted, parts of the four neighboring trees were evidently much affected, but only the sides next to the diseased tree, which made it the more striking, and convincing of the contagion, if this is a proper term.

On another occasion, I had a favorite early purple peach, before I had a nursery, that I suspected was partially affected by the yellows, and being desirous of preserving the variety, I cut the healthiest branch I could get, and I had twelve buds inserted in healthy peach stocks, but when they had grown about three feet, they showed the disease so plainly that in order to prevent it from spreading, I pulled up all the trees, and had them burnt.

From these cases, it seems to me the disease may be generated by planting old peach orchards or nurseries too soon after the removal of the old trees, and also by planting too near those already affected with the disease; and if cuttings or scions are taken from diseased trees, their product will be also diseased. I also think the yellows may be communicated to young trees by planting seeds taken from diseased peach trees. Respectfully your friend, ROBERT SINCLAIR.

*Clairmont Nursery, March* 18, 1841.

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## CANKER WORMS.

From the Yankee Farmer, of July 18, 1840.

*Mr. Editor*—When I was in Boston last winter, I promised to give you some information respecting the habits of the canker worm; also some of the means to be used to prevent the ravages of this most destructive insect.

I shall commence with the insects in the egg, and shall proceed with a number of occasional communications, which I shall send you from time to time.

The worms are usually hatched about the fifteenth of May, sometimes earlier and sometimes later, depending very much upon the season. When first hatched they are very small, but their presence can soon be discovered by a close observer. They are, in the early stage of their growth, very susceptible of cold, and a frost is fatal to them; although the insect in its perfect state is as hardy, and will endure cold or a pelting storm like a polar bear; in fact, the grub in its ascent upon the trees in February when overtaken by a cold snap, much resembles Bruin when placed in like circumstances, by drawing up its legs under the body, and sleeping in a torpid state until moderate weather. Last spring, in a cold northeast storm, I observed the worms crawl into the closed petals of the apple blossom for shelter. They usually acquire their growth and leave the tree about the fifteenth of June, and during this period, change their skins several times.

They eat with astonishing voracity, particularly in their last stage, first devouring the leaf and then the fruit. After acquiring their full growth, which is usually in four or five weeks, they leave the tree by lowering themselves down to the ground by a silken thread, which they learned to spin from the earliest period of their existence, as they move about upon the branches, always careful to have the end of the cord fast, so that if the branch on which they are feeding is struck, they will always show themselves by spinning down a few feet, and if suffered to remain a short time, they will again ascend the tree by their cord, alternately grasping it with their feet and seizing it with their jaws.

Professor Peck is in some respects incorrect, in his description of the habits of this insect. He says "the worms descend by the *trunk* of the tree in June, and immure themselves in the earth near the trunks, and rarely if ever more than three to four feet distant." Our observation has led us to a different opinion. They leave the tree from the branch on which they feed, and suddenly spin down by their thread to the ground, and enter it to the depth of form two to six inches, and immediately change into the chrysalis state. I have seen them leave the branch of an elm thirty feet from the trunk, and at once work their way into the ground. And the grubs and millers can be seen in the season of their running, soon after sunset, struggling and fluttering through the grass for many feet around, usually to the extent of the branches of the tree, under which they are striving to reach the trunk. And if in their progress they meet with a fence, post, or house, they will ascend it, and the grub before leaving it will deposite her eggs.

As we have now fairly disposed of the canker worm, for at least a few months, by burying it in the earth, let us now look around us and see what can be done to counteract the bad effects of its ravages; and what I shall here relate, came under my observation last year. In purchasing a piece of land, I came in possession of twenty large apple trees, which had been eaten by the canker worm more or less for several years, but last year, particularly. the foliage and fruit were eaten entirely up. On some of the trees the worms were very numerous, and hardly found sufficient quantity of food to subsist upon.

After the worms had become quite large, I lessened their numbers by shaking the limbs and throwing coarse sand into the trees, thereby causing them to suspend themselves by their thread, and striking them off with a stick to the ground, and then tarring the trees to prevent their ascending them. Dry coarse sand or ashes placed around the trunks will answer the purpose, to prevent the worms again ascending the trees. Small trees in this way may be wholly cleared of worms, but on large ones this method of extirpating the insect avails but little, for after destroying great numbers, enough will still remain to greatly injure the foliage and fruit, besides the injury the tree will be likely to sustain in shaking it, when the bark from the great flow of sap at this season of the year is very apt to peel, thereby causing canker. For this reason, I prefer coarse sand thrown into the tree, as it will generally destroy them without causing injury. But after the insect is on the tree, if a large one, little can be done to destroy it, and it should be our chief aim to devise some way to prevent its ascending the trunk.

Soon after the worms had entered the ground and passed into the chrysalis state, I removed the earth around the trees to the distance of five feet from the trunk, and to the depth of six inches; this

I carted away and brought back, in return, some good manure mixed with earth, and placed it around the trees. In this way I got rid of a vast number of the worms by removing them with the dirt, besides increasing the growth and fruitfulness of the trees. I then covered the compost over with spent bark or tan, which I have found beneficial by preventing the growth of grass, and keeping the earth loose, and by the property it possesses of retaining frost, the earth around the trees is kept frozen, causing the grubs to remain still during the moderate weather in February, March, and beginning of April, thereby avoiding the necessity of tarring during this period. In the autumn and spring following the trees were tarred, and after the grubs were done running, they were scraped, and a wash composed of lime, soap suds, clay, and cow-dung applied with a whitewash brush to the trunk and branches. The trees were carefully pruned about the middle of May, by removing all the dead and diseased limbs, which, in consequence of repeated injury they had sustained by the worms, had become quite numerous.

There is nothing, perhaps, that will so soon cause decay in an apple tree as this insect. You will first notice the injury by observing the extremities of the branches, which will be dead, and unless they are removed in pruning, the disease will extend along to the trunk, and cause the death of the tree. Trees deprived of their foliage by the worm, generally put forth again the same season, but this extra labor of furnishing new leaves is very exhausting to the vigor of the tree, and hence it becomes necessary to prune close, and apply manure, and in some bad cases of injury, the more stimulating the better.

When manure cannot be obtained, digging around the tree will answer a good purpose by crushing the chrysalis, exposing it to the action of the sun and air, or to be devoured by birds, and the earth being loosened, will impart vigor to the tree. The question may be asked by some of your readers, when is the best time to dig around the tree? In reply, I would answer, I consider the first of July the best season, although it may be done at any time, from that period to the fall of the leaves in autumn. The reasons for my preferring the first of July are these. The worms having passed into the chrysalis state, the shells are soft and tender, and are more easily crushed by digging, and the tree will the sooner recover from its injury by receiving an *immediate benefit* from your assistance, but if delayed until autumn it will derive little benefit from your labors the present year. I have succeeded by the process above described, in completely restoring trees to the highest state of health and vigor, covering them with an abundance of fruit and foliage, and with but very little appearance of the canker worm. Yours, with respect and esteem, S. P. FOWLER.

[Having previously signified our intention to copy the above article, Mr. Fowler, after requesting us to make a few corrections, adds—]

*The method to be used to renovate and restore to health and vigor apple trees that have received injury from the canker worm.*—When trees have been suffered to be eaten for several years, as is sometimes done by some persons, under the mistaken notion that it is best to let them alone and *eat themselves out*, as they term it, it frequently becomes a subject of inquiry, what is best to do with them to restore them? I will relate to you the method a neighbor of mine pursued in regard to his trees, by my suggestion. He had suffered the canker worm to injure them most severely; many of the limbs were dead—others partially so; suckers were growing up from the middle of the tree; the limbs and trunks covered with moss, and with the appearance of canker—exhibiting decay and disease. Four different modes to pursue toward the trees presented themselves to our minds. The first was to cut them down and set out new ones; but this was given up, when we considered that it was a well established fact, that new orchards do badly on the site of old ones. The second was, to head them down, after the manner laid down by Forsyth and other writers, to restore *old* and decayed trees; but this mode was abandoned, for reasons which will hereafter appear. The third was, to trim out the suckers and cut off the dead limbs, shorten those half dead by cutting them down to the live wood, pruning close, ploughing or digging amongst the roots; how we should have succeeded in pursuing this method, I do not know; it has been practised by Capt. Benj. Porter this spring upon his trees, which you will remember the canker worms and neglect have caused to be in a bad condition. We shall see the results in a few years, if we live. Had I owned that large orchard, I would have given considerable for the opportunity which he had of entirely changing his trees, by grafting the suckers upon his old, and many of them poor varieties of apples, and substituting the new and better kinds of fruit.

Our principal objection to this method was the difficulty of again imparting vigor in old and diseased tops, full of moss and canker, and likewise perceiving the tendency of the sap to flow into the suckers instead of the old limbs; and should these suckers be removed every year, or indeed twice a year, as we have sometimes done, still there is a tendency in the tree to throw out new suckers, plainly indicating thereby that it is striving to obtain a new top, which in time it would acquire without assistance, (although much better with it,) by the growth of the suckers and the old limbs dying down to the trunk. Our fourth method, which we practised with success, and recommended to others, is as follows. First, to cut out all dead limbs close to the trunk, and when large, apply paint, with a brush, to the wounds. Red or yellow ochre is best; by the way we consider this the best application for wounds caused by removing large limbs, or by accidents, that can be made. I applied Forsyth's composition to the ends of limbs removed in pruning a few years since, and I found some of them rotten, caused by its retaining moisture, as I supposed. Cut off all partially dead limbs down to the live wood. Trim out the suckers, leaving a sufficient number of the most vigorous to form a good head to the trees, and apply the wash; dig around the trees and apply manure, if you have it. When the suckers have acquired a sufficient size, graft them, and as they grow and occasion may require, cut the old limbs out close to the grafts at the fork, prune the grafts and give them a proper direction, so as to form a

good top. By this method, in a few years you can get rid of the old head, substituting for it a new one, healthy and vigorous. The advantages of this method over all others in restoring trees badly injured by the canker worm, are these; it gives us an opportunity by grafting, to obtain the new and better varieties of fruit; and in some old orchards this is very desirable. The reasons why we prefer it over Mr Forsyth's method of heading down are these; the old limbs are bearing some fruit while your grafts are growing in your suckers, and you do not risk the life of the tree by depriving it at once of all its limbs, for there is some danger of losing large trees in this way.

There are many things connected with the habits of the canker worm and the means of its destruction, which it might be useful to publish. It has undoubtedly produced more injury to our apple trees than any thing else.

The next most destructive insect to our trees, or rather fruit, we have to trouble us, is the curculio. They have increased very much with me in a few years, destroying or injuring, I should think, nearly half my fruit.

The canker is a disease well understood in England, but very little here. It is common with us, and when its effects are seen, it is ascribed by many people, ignorantly, to injury caused by severe winters, and nothing more thought of it. Much might be said on the subject of pruning. Very many people who prune trees, know but little about it. Much has been said and written on the proper time to prune, but after some considerable experience I think more of the *manner* of performing it than I do of the season in which it is done. All seasons have their advantages and disadvantages, and much might be said on both sides; I have pruned at all seasons of the year successfully and now do it when I have leisure and my saw is sharp. The attention of many people has been directed within a few years to the cultivation of fruit trees, and more have been set this year than I ever knew before.

A great deal more I have to write, had I space.

Your friend, S. P. FOWLER.

N. B.—I wish to be understood in my remarks upon pruning, that I prune any time between the fall of the leaf in autumn and the middle of May following. I never pruned at any other season of the year, except to remove suckers in July or August, which I think advantageous. And now as I am upon a fresh sheet, I will say more.

As I before remarked, many people are setting trees and selecting the kinds from the knowledge they obtain from books, regardless of their adaptation to particular soils and situations, which is a great mistake. Thus, for instance, the Newton pippins, Pennock's red winter, and many others raised south of New York are indifferent fruit with us, however excellent they may be at the south. And some of our common varieties of fruit, for instance the Pickman pippin, a most valuable apple with me, I am informed by Mr. Jno. M. Ives, is a poor tree in his soil. And the old blue pearmain, greatly extolled by some persons, in my soil the fruit is poor and the tree a shy bearer.

S. P. F.

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## FIRST EXHIBITION AND FAIR OF THE AGRICULTURAL AND HOTICULTURAL SOCIETY OF HENRICO.

The results of this first attempt, considering the always unfavorable circumstances of every *new beginning*, were highly gratifying to all who felt interested therein; and to us they not only furnished a subject for gratification, but of surprise. The show of fine animals was much better, and more full, that we had expected, and that of implements of husbandry, machines, and agricultural and horticultural products, was still more abundant. Above all, the great concourse of visiters must have been quite unexpected, and, we trust, gave an additional impulse to the zeal of the society, as well as a very considerable addition to its funds, by the payments for admission tickets. We believe that the expectations of every person present were far exceeded by the reality, in all the respects referred to above. So far, this young society has rendered excellent service; and its members have but to persevere, and to pursue a proper *working course*, to render very great benefit to the agriculture of Virginia. We should rejoice to see the good example followed by the establishment of societies in every county in Virginia.

If there was any thing to object to in the exhibition, it was a fault caused by the great interest shown by the public, and the consequent want of room and sufficient accommodation for the unexpected crowd of visiters. There were in fact so many viewers, that many of the things exhibited were not seen, nor heard of at the time, by half the persons on the ground. This defect can hereafter be easily guarded against.

We copy below the official reports of the premiums awarded, and other proceedings.—ED. FAR. REG.

From the Richmond Compiler.

The toasts given at the dinner after the cattle show and fair of the Henrico Agricultural Society have been placed in our hands, and will be found below. The Rev. Jesse H. Turner, president of the society, presided, assisted by the vice presidents, Messrs. Thos. S. Dickin and Richard G. Haden. The best feeling prevailed, and the toasts were washed down with domestic wine.

*Toasts by the Agricultural and Horticultural Society, at their Dinner on the 26th May.*

1. Agricultural Exhibitions: Courts of justice, truly open to the high and the low, the rich and the poor, where "the fruits of skill and labor rise to give testimony, and where the very earth is eloquent, and speaks nothing but the truth."

2. The farmer: He who handles the plough may always be trusted to wield the sword.

3. Woman: The last created and fairest flower that bloomed in Eden.

4. James Barbour: The successful agriculturist, the eloquent patriot, the upright man:—although absent he cannot be forgotten.

5. James M. Garnett: The virtuous and enlightened citizen and zealous promoter of the interests of agriculture. His presence affords encouragement and satisfaction.

Mr. Garnett responded to this toast very briefly. He complained of a deviation from the custom observed in his early days. Then every body had credit for more or less of modesty, and rather than put a man to the blush, a gentle hint was always offered that he might retire before a complimentary toast was given him. He confessed the awkwardness of this position under the new fashion, but thanked the society for the flattering toast just drank. He gave the following sentiment:

Pasturage and tillage: The two breasts of the state—may they never go dry from the mismanagement of the state milkers.

6. Edmund Ruffin, editor of the Farmers' Register and of the Southern Magazine—His labors are unceasing to give fertility to our soil, and purity to our political institutions.

Mr. Ruffin expressed his thanks to the society for the notice they had taken of his efforts, and offered the following toast:

Marl banks and paper-money banks: All the vast increase of riches offered to agriculture by the former, will not furnish a sufficient supply for the legal and ordinary depredations committed by the latter.

7. Charles T. Botts, editor of the Southern Planter: a young, but ardent soldier in the cause: we give him the right hand of fellowship.

Mr. Botts expressed his grateful sense of the compliment paid him. He introduced, in a happy manner, the following toast, alluding to the kingdom where one man held despotic sway, and to another kingdom where, he said, every man was a monarch:

The farmer: The monarch of the vegetable kingdom.

By Charles Burton. The memory of Chas. Von Linnæus, the illustrious founder of modern botany and classificator of all nature: Most truly meriting the motto granted by his sovereign—"Deus creavit, Linnæus disposuit," God created, Linnæus arranged.

Mr. Lyons, on behalf of the society, read the following toast:

Our respected president, whose industry, energy and skill have caused the "desert to rejoice and blossom as the rose."

Parson Turner said he felt greatly flattered by the kind compliment from the society through his friend and fellow member, Mr. Lyons, who he felt sure would heartily make up any deficiency on his (Parson T.'s) part.

Mr. Lyons, with much good humor, said, in substance, that it had been his lot frequently to be called on to perform duties which occasioned embarrassment, and in the discharge of which he himself felt deficient—but he was not the least embarrassed on the present occasion, because there was no deficiency for him to supply.

The company broke up at an early hour, much gratified with the proceedings of the day, and animated with a fervent zeal in the cause of the society.

*Premiums awarded by the Agricultural and Horticultural Society, on the 26th of May.*

No 1. For the best horse or colt calculated to produce stock for the draught or saddle, $15. Report of the committee, that none was offered worthy a premium.

No 2. For the best blood mare, of the same description—premium, silver cup, value of $10, awarded to Ro. Carter Page.

No 3. For the best jack, a premium of $15, awarded to Wm. Jennings.

No 4. For the best bull, for domestic purposes, a premium of $10, awarded to W. B. Sydnor, upon his Durham bull Frolic.

No 5. For the best milch cow, a premium of $10, awarded to Abraham Warwick, for his Durham cow, Lady Ellersly.

No 6. For the best yoke of oxen, a premium of $10. Committee reported that none were exhibited worthy a premium, and recommend that this premium be given to Mr. Colquitt's Durham cow, Washington Belle, for reasons stated in their report.

No. 7. For the best boar, a premium of $15, awarded to the Rev. J. H. Turner, on his Berkshire boar President. This premium relinquished to the society.

No. 8. For the best brood sow, a premium of $10, silver cup, awarded to J. M. Sublett, on his Berkshire sow Suke.

No. 9. For the best specimen of fruits, the production of the exhibitor, a premium of $10, awarded to Mrs. E. A. Petticolas.

No. 10. For the best specimen of rare and beautiful plants or flowers, the production of the exhibitor, a premium of $10, awarded to New and Heydecker.

No. 11. For the best specimen of vegetables, a premium of $15, awarded to Wm. H. Richardson. This premium relinquished to the society.

No. 12. For the best cultivated market garden, a premium of $15. Not awarded by the committee appointed.

No. 13. For the best specimen of domestic wine, the production of the exhibitor, silver cup, value $10, awarded to Josiah Woodson.

No. 14. For the best specimen of domestic silk, the production of the exhibitor, a premium of $10 silver cup, to J. P. Shermerhorn.

No. 15. For the best specimen of butter, not less than 5 lbs., the production of the exhibitor, $10, awarded to Mrs. Ro. A. Mayo and Mrs. George Woodfin, $5 each.

No. 16. For the best suit of clothes of Virginia manufacture; the premium to be given to the producer of the materials of which the clothes were made, a premium of $15, awarded to Thomas S. Pleasants.

No. 17. For the best specimen of agricultural implements, ploughs, cutting machines, corn-shellers, &c. $15, awarded to Gretter and Peake on a plough, $5, relinquished—the exhibitors not being patentees or manufacturers; to C. T. Botts, cutting machine $2.50, this premium relinquished to the society; to Jabez Parker, corn-sheller, $2.50; do. wheat machine and fan, $5.

### DEPRECIATED AND WORTHLESS BANK NOTES, AND SUBSCRIPTIONS TO THE FARMERS' REGISTER.

From the depreciation of the paper (and now sole) currency of the country, which is the general result of the swindling banking system, all branches of business suffer greatly—and all persons, except usurers, and traders in exchange, and especially the banks, which manufacture this depreciated currency, and whose greatest profit now consists in the depreciation and discrediting of their own notes, caused by their own illegal and dishonest action. But *our* particular employment, as publisher of a periodical, perhaps suffers more than any other; and if our subscribers continue to delay payment upon the ground of difficulty to obtain better funds, or to pay us in depreciated money as many have done latterly—and this currency should still continue to grow worse and worse, as we expect it will—then our publication and business must be broken down, even with a subscription list larger and more valuable *on paper*, than it ever has been before. We *had* thought that the words of our conditions, (though adopted long before the banks had reached their now very general degree of fraud, and their issues of depreciation and deserved discredit,) would have guarded against very heavy losses by discount on money worse than that of our own banks in Virginia —which is bad enough. But not so. It is not only that particular banks and their notes, formerly in something like good credit, have become discredited, but also that many subscribers seem to think that a depreciated bank note has at least *one peculiar value*—which is, to serve as payment for the Farmers' Register.

Owing to the great and still increasing losses from this source, we *must* require hereafter full compliance by subscribers, in regard to the bank notes they send, with the long existing conditions of publication. These have long required, 1st, that remittances shall be in notes or checks on *specie-paying banks*, if any such there be in the state in which the subscriber resides; 2dly, if there be no such notes, (and there are none now, south of New York, that we ever see, except of South Carolina banks,) then, that payment shall be made in notes of par value in Virginia, (that is, not more depreciated than the bank notes of Virginia,)—and 3dly, if neither one or the other can be done, any notes of a *city bank*, of the state in which the subscriber resides, would be received—supposing of course that such would be among the *best currency* of that state. Now, even under these restrictions, (or professing to respect them,) we have had paper sent us which we cannot sel at 30 per cent. discount. (We refer not to actual frauds in payments, by *gentlemen* of high standing too, in paper almost worthless here, and discredited at home—as Brandon paper formerly, and Union (Florida) Bank notes recently.) We have to lose a heavy discount on nearly all the bank notes (or all such as are sent to us,) of Georgia and Alabama. By the prices current it would seem that Savannah and Augusta notes are as good at home as those of Virginia are at home. But not one of these *city* bank notes have we seen, while remittances have been sent us of notes of every smaller town and every more discredited bank in Georgia. In other cases, notes are sent, as of "specie-paying banks," because the bank authorities, and the newspapers acting under their orders, *called them so*—when such notes were 5 to 10 per cent. below specie at home, and much more abroad. By the way—there is only one mode of testing whether a bank is *specie-paying*, or *non-specie-paying*; and that rule is infallible. If the notes of a bank, where issued, are worth less than specie, it is certain that the bank is not truly and fully paying specie; and all the assertions or oaths of bank officers and directors, and bank debtors and bank slaves, and newspaper editors, to the contrary, are not worth a straw as testimony, if in opposition to the simple fact of even so much as one per cent. discount. Yet some banks whose notes are 5 per cent. below par at home, and 20 abroad, have claimed to be "specie-paying"—and their officers and directors, and men too of high standing, are not ashamed to maintain the truth of the palpable and self-evident falsehood.

It is impossible that we can devise any form of phrase for our conditions, which shall serve to meet and guard against all the old and the new frauds of issuers of paper money—and therefore it will not be attempted farther than has been done already by the long used words of our conditions. Subscribers who desire to comply with their obligations, can do so, at least with a little delay, by sending paper not depreciated (below specie) at most above 5 per cent. at home, and which might not be worse than 10 per cent. discount in Virginia. This would be a heavy loss, and perhaps enough to ruin our business, if continued long. But we cannot longer submit, voluntarily, to receive much worse currency, and in some cases, as it would seem, selected by the senders because of its low value. Nor will the claim to pay such discredited notes be admitted the sooner, because the bank adds to its other frauds the false assertion that it pays specie; or because such fraudulent and discredited or bankrupt bank may be located in a *city*.

We are obliged to bear all losses which our distant subscribers choose to put upon us. If they

choose not to pay at all, we have no remedy—and if they choose to commit the wrong, somewhat less in degree, of paying in notes at 10, 20 or 30 per cent. discount, we can no more help ourselves. But the imposition and injury are not the less felt, and appreciated, because not always protested against; or because it is submitted to, without complaining in each particular case.

In fine, we beg that all who are well-wishers to this publication, and desirous of its success and permanency, will duly consider the enormous injury that it is subjected to in this respect. To enable it to bear up under such heavy losses, it is necessary that every existing subscriber should perform his obligations as nearly as the general fraudulent course of the banks will permit; and also to use his influence to extend the circulation, and thereby increase the income of the publication. We lose on the best of bank notes, as those of Virginia, say 4 per cent. on the difference between their value and specie—10 to 50 per cent. on the larger part of all payments from south and west of South Carolina—besides losing very many payments entirely, mainly because of the difficulties of procuring good money for remittances. The great and general depreciation of the paper currency in Georgia, Alabama, Florida, Mississippi and Arkansas, serves as an excuse to most subscribers for their paying nothing; and to our best friends and efficient supporters in those states, who desire to continue, as they have done heretofore, to pay their dues fully and promptly, it is so disagreeable and galling that they should be compelled by the banks to be delinquent, that many of them will withdraw their subscriptions, because of the impossibility of making their payments punctually, and in notes not greatly depreciated. Thus we lose in every way by the fraudulent banking system; and it will require all the counteracting aid and increased support of the friends of the Farmers' Register to prevent its sinking under these increasing losses of every kind thus produced. In opposing that system, and the whole army of banking pillagers, we have to suffer much from the hostility and revengeful influence of that powerful interest. This alone would cause much withdrawal of support from this publication. But we should not regard the worst effects of the *hostility* of the banking interest, powerful and pervading as is their influence, if we could but be protected from the worst impositions of their cheating and robbing operations, carried on, not in malice, or hostility or revenge, but merely for the profit of the dishonesty. If then, those of our friends who are heartily opposed to this system of general and growing fraud and pillage, do not desire to have our publication silenced in regard to their enormities, and put down, by being so cheated and robbed that it can no longer be supported by its income, they must exert themselves to meet the danger, and counteract it by new exertions to sustain the publication. We say frankly, that according to present appearances, half our issue will be a charge instead of a profit to the publication; and that if the same appearances continue to the end of the year, the names of nearly half of our subscribers must be erased, after their having been furnished with our publication, for one or more years *gratis*.—Ed. Far. Reg.

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### GAPES IN CHICKENS.

From the Cultivator.

*Messrs. Editors*:—In your April number, a correspondent attributes the gapes in chickens to breeding from too old cocks. Whether this will have any effect to produce the disease, I am unable to say, but I have long since found a *preventive*, and practised accordingly. This I have communicated to others, who have complained of the malady; and similar treatment, as far as my knowledge extends, has been attended with the same marked result.

The disease is prevented simply by scanting them in their food. Who ever heard of chickens which were not confined with the hen, but both suffered to roam at large and collect all their own food, to be troubled with this disease? The most common food for young chickens is Indian corn meal, mixed with water so as to completely saturate it. This, when eaten in too large quantities, is almost sure to produce the gapes. Great care should, therefore, be observed in the feeding of them, and the meal should be previously mixed some few hours, or otherwise it will swell in the *stomach* of the chicken, which, when full, is the very cause of the disease. Garret Bergen.

*Brooklyn, N. Y. April* 20, 1841.

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### DESTRUCTION OF CATERPILLARS.

From the Boston Cultivator.

Our readers are reminded that this worm should be attended to in season and when this is done the labor of extirpation will be trifling. Close attention to clear the limbs for one or two years will entirely rid an orchard of the nuisance.

One easy mode of destruction is to apply strong soap suds to the nest—if the tree is large a swab tied to the end of a pole will accomplish the purpose effectually. Suds which have been used by the washwoman are good as any, and by rubbing a swab on the nest—after it has been dipped into the suds—the worms are quickly destroyed.

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### ON THE TART OR PIE RHUBARB.

From the Farmers' Gazette.

Jussien, in his classification, has placed this plant in the 6th class, *Dycotyledons*, 52d order, *Polygoneæ*, or the *dock tribe;* herbaceous. In the classification of Linnæus this order of plants is placed in the 9th class, *Enneandria Trigyna.* It only includes four families: the laurel, the cashew, the rhubarb and flowering rush. Of the 3d order there are nine species or more; the only ones, which are cultivated in the kitchen garden, are the *Rheum Rhaponticum*, introduced from Asia to Great Britain in 1578, the Siberia in 1758, and the *Rheum Hybridum*, from Asia in 1778.

These three species are raised in this country for the sake of their succulent acid petioles, as a substitute for sour apples, gooseberries, &c., or an addition to them. The two latter species seem not to have been long imported into the United States, or, if they have, not been extensively known at the south.

The rhapontic and the undulate have leaves from eighteen to twenty-four inches long, and from twelve to eighteen wide, according to the soil and season; they are cordateovate, rather obtuse, blunt, smooth, with reddish veins; their flowering stalks will grow to the height of three or four feet. There are many distinctive marks in the leaves of these two species, not necessary to be here mentioned. Probably Wilmot's early scarlet rhubarb is a variety of the rhapontic, and there may exist many other varieties.

The hybrid species has very large leaves; when under good cultivation, they will often measure four or even five feet in length, and of a proportionate width; they are somewhat cordate, smooth and of a light green or glaucous color.

These three species are cultivated for the stems of the lower leaves, which come to maturity earlier in the spring than the gooseberry and other fruits for which it is a substitute; the hybrid affords the most abundant and succulent supply for these purposes. Rheum derives its name from the ancient name of the river which watered its native region; the *Rha*, now named the *Volga*, emptying itself into the northern shore of the Caspian Sea.

All the species of this plant may be propagated from the seeds or from the roots; if from the seed, which is the best mode, in February or March, sow the seeds about six inches apart in a light deep and rich soil; well pulverized, for depth and richness of soil are indispensable requisites for good healthy plants.

In the autumn of the same year, if you have taken good care to water and to shelter them from the scorching suns of the summer, the plants will be fit to transplant into their beds; young plants require careful watering, even when it would be injurious to older roots; and we have seen them protected from the sun by driving down on the south side of each plant, a board about twelve inches wide, and slanting so as to break the sun's rays in the middle of the day, and yet let the air and light have free action upon the plant. In this way you can in all October have them put out so as to produce leaves for the next spring:

When the roots are divided for transplanting, you must retain a bud on the crown of each section. Before transplanting, either these sections or the young plants from seed, select a light soil, rather inclined to sandy, have it highly manured and spaded up to the depth of three spits of twenty-one inches, and thoroughly pulverized —then set out the rhapontic or the undulate in rows at the distance of three feet by two—but the hybrid at five feet by four.

They will now only require to be kept free from weeds, and to have the ground occasionally stirred up with a three tined fork or a rake, adding every spring a good dressing of well rotted manure, stirred into the earth as deeply as possible, and your bed will continue good for many years.

The advantages of having the petioles or leaf stalks blanched for all culinary purposes, are twofold, *i. e.*, the desirable qualities of improved appearance and of flavor, as well as a saving in the quantity of sugar, necessary to render them agreeable to the palate; for the blanched leaf stalks are much less harsh than those grown under the full influence of light in an open situation.

This plant may be forced by placing flower barrels or tight boxes over a few plants and covering them over with fresh stable manure or by some of the other methods in gardening, directed for forcing vegetables. By covering over all the roots to the depth of a few inches with leaves or light litter or any other protection from cold, the rhubarb leaves will come forward much earlier in the spring and much larger. The protection should be removed as soon as the weather becomes warm, carefully avoiding to injure the young shoots that may have started.

Whenever you would gather the petioles remove the earth a little from the crown of the root, and somewhat bending down the leaf, which you would remove, then slip it off with your hand, without using a knife or breaking the stalk. The leaf stalks may be gathered as soon as they are half grown or are sufficiently expanded; but a much larger produce can be obtained by letting them remain until full expansion has taken place, when the full grown stalks are gathered and tied up in bundles of about a dozen each, and thus exposed for sale in the market. Some of the leaf stalks are two or three feet long and over.

As letting the stalks run up to flower would weaken the powers of the roots for preparing the necessary nourishment for winter quarters,—top all but a few of the healthiest ones, which may be left to perfect their seeds, which will ripen in August or the last of July.

The petioles or leaf stalks of the rhubarb plant are used in cooking pies, tarts, preserves, sauce, puddings, &c.

1. *Rhubarb preserve*; strip the stalks of their outer skin and divest them of the small fibres which would render them stringy,—more especially if the leaves are a little old,—then cut them transversely into short pieces about the size of gooseberries, and parboil them with as much sugar and such spices as suit the taste.

2. *Rhubarb pudding*; with a rolling pin, as if for an apple dumpling, flatten out a suety crust and spread thereon the stalks cut into small pieces of a gooseberry size, then roll them up in any shape at fancy and boil in cloths, same as apple dumplings; it is served up hot, cut in thin slices with sugar and butter sauce between

each layer; in this way the fruit retains all its virtues and by most persons is highly relished.

3. *Rhubarb pie*; cut the stalks to pieces of the size of the gooseberry, put these pieces into a dish with its bottom covered with a crust or not, at pleasure; squeeze over them a little lemon juice, adding orange peel, sugar, rose-water, cinnamon and other spices to your taste, covering the whole with a good puff paste, and then bake it.

4. *Rhubarb tarts resembling codling tarts;* cut the leaf stalks into pieces about four inches long, skin and slowly simmer them in a saucepan with sugar and a trifle of water, for one hour; when cold, make them taste like codlins by adding cinnamon, lemon peel, &c.

5. *Rhubarb sauce*; boil the stalks over a slow fire, till tender, in a small quantity of water with sugar and such spices as suit the taste, and strain off the liquor, squeezing the stalks dry, and, when the liquid syrup or sauce is cold, bottle and cork it tight; this will keep for years.

After giving the above recipes, we are sure that our esteemed fair correspondent will excuse us from publishing the recipes for making rhubarb cream—jelly—jam—trifle—fool—marmalade, &c. as they can easily be made from the cookery books, by substituting "rhubarb" for "gooseberries," "strawberries," &c., used in the common way of making those sweetmeats.

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## A MINUTE SCIENTIFIC DESCRIPTION OF KENTUCKY BLUE GRASS.

From the Kentucky Farmer.

We have much satisfaction in laying the following description of our great grazing grass, before the readers of the Farmer. We hope it will serve to settle the disputed question as to what species of the poa genus the blue grass is; for there appears to be great difference of opinion, even among botanists, on the subject. Although the more general opinion is, that it is the *poa pratensis*, yet it has been, by various writers, supposed to be *P. viridis*, *P. trivialis*, &c. &c.

In regard, however, to the accuracy of the following *description* of it, be it what species it may, we are prepared to vouch; having gone carefully through the dissection and inspection of all the parts or organs of the plant and flower, by means of a good microscope. Mr. Lewis spent ten days of labor in dissecting many flowers, to be certain of the correctness of his description; and, after he had become entirely satisfied, we then spent a day with him, verifying the accuracy of his description. Although we have no expertness in such dissections, we can yet venture to say that, with the aid of a good microscope, we could *see* that his description, as far as it goes, is correct. All that he states may be relied on; though our readers will not require an endorser for Mr. Lewis' scientific opinions. It will be observed that he does not speak of a *nectary;* and this is because he had not been able to discover it. Every other important organ of the plant was discovered; and he only describes what he saw.

It will be observed that the description by Mr. Lewis comes near identifying our blue grass with another *poa* as described in Nuttall; but, although the agreement is remarkable, the discrepancies leave room to hold on to the claim of *P. pratensis*. In some of the scientific descriptions of *P. pratensis*, it is said to have creeping roots; but such is not the fact with regard to Kentucky blue grass. We leave it with botanists to settle the scientific term; and we shall forward to a number of them, in various quarters, specimens of the genuine grass.

*Llangollan, May* 26, 1841.

*Dear sir*—The grass called in Kentucky, *blue grass*, in Virginia, *goose grass*, *yard grass*, *green-sward*, in England, I believe, great or smooth *stalked meadow grass*, by all botanists arranged in the *poa genus*, but by some called the species *P. pratensis*, by others *P. trivialis*, is now in bloom. I have taken some pains to examine it with a compound microscope of some power, and give you the results of my examination. But so similar are the characteristics of the species, in this genus, that I am doubtful, after all, if this plant can be distinguished by the characteristics herewith sent you, from other species of the same genus. Its general appearance is sufficient to enable farmers, familiar with it, to distinguish it at a glance, from all other species, not only of the *poa* genus, but from all of the *graminæ family*. Its root is fibrous, without knots or enlargements of any kind, throwing off at their sides secondary fibres, as fine as a single thread of a silk-worm, of a pure white color. The roots in a favorable soil are cespitose, throwing up many radical leaves and forming a dense turf, so that the seeds of other plants cannot reach the ground, and hence the plant excludes most other kinds of vegetation. The roots will grow as long as the stalk or culm is high, and they are perennial. The stalk, although it to the naked eye appears a smooth-surfaced cylinder, from node to node, is *striated*, with raised, longitudinal, parallel stripes of deep green, covered with lines of scabrous, whitish, protuberant dots. Alternating with these stripes, square-edged grooves of a paler green and smooth surface, run parallel with them from node to node, giving to each internode the appearance of a grooved fluted column with raised plain surfaces between the grooves of a deep green, dotted with *white stucco*,* and the bottoms of the grooves of a pale green and highly polished. The culm in this country is from one foot to four feet high, but where it has been grazed, from three to eighteen inches high. The sheaths of the cauline leaves are much longer than the lamina. The stipule is a semi-circular extension of the sheath about one-twentieth of an inch above the articulation, deprived of parenchyma and of silvery white color and scariose jutting above the blade and resting against the culm it gives the appearance of a sheath cut off and the blade or lamina of the leaf glued on to the back of it just below where it was cut off. The lamina or blade of the leaf is linear-lanceolate with a coarctate pungent point. The blade carinate

* May not the regular lines of which dots on the stalks be a silicious deposite *to strengthen it?* Dr. Brewster gives it as his opinion, that the *Tabashear* in the nodes of bamboo is an integral element of the plant itself and *not an accidental deposite*, and that it performs some important function in the processes of vegetable life. See the Edinburgh Journal of Science (16th) page 285, 1828.

with serrated edges and surface exactly similar to that of the culm, and having a distinct dorsal line from the base to the apex, and constituting the pungent scariose point. In the early part of the growth of the culm the cauline leaves ascend, making an acute angle with the stem. They subsequently fall to a horizontal position, and ultimately flag loosely down like a streamer from the mast head of a ship. The culm is hollow or fistulous from node to node. The radical leaves are linear-lanceolate, and in all respects like the cauline leaves, except that they are much longer and narrower, being frequently two feet long. They, as well as the cauline leaves, are frequently partially discolored with brown ferruginous blotches. The peduncle or flower stalk is a rachis or axis of inflorescence, with the nodes gradually approximating as they approach to the top, and its diameter diminishing to the size of a fine thread. There are generally *nine nodes to the peduncle*, besides the terminating spikelet of flowers. From every node there proceed divaricate spikes in semiverticils *alternating with each other*. The semiverticil at the lower node contains five spikes generally. They divaricate horizontally at right angles to the peduncle, the two forming the diameter of the semiverticil, and the one at right angles to them being longer than the two intervening spikes. These spikes are then divided into spikelets *at some distance from their insertion at the node*. And on these spikelets and on the termination of the main spike grow the flowers. On the spikelets there are from two to six flowers. Each succeeding semiverticil to the top is formed like the lowest one on the peduncle, but the spikes are shorter, and generally fewer in number at each ascending node, so as to form a conical pyramid of inflorescence or loose sugar loaf shaped panicle. The spikes and spikelets are finely filiformed towards their extremities and tapered from their junction with the stalk. The flowers are densely arranged on these flatly, or compressed and distichously placed on the rachis with their points all directed to the apex of their respective spikelets, and each flower and even each of the *flosculi of the flower having its own distinct pedicel*. The flower, so called because the two glumes are common to the three florets above them, is composed of three distinct flosculi or florets, one immediately above the glumes, the next alternately above it on the spikelet or rachis, and the third terminating the spikelet or rachis. The glumes in their form are exactly like a small portion of the end of the lamina of the leaf, that is lanceolate, carinate and pungent, they are scariose at their edges near their apices. But on their dorsal line they have toothed setæ, hooked from their base to their apex, all the points inclining to the apex. These hooked setæ are formed like cat's claws or the prickles on a rose bush. These, as well as the exterior valves of the peleæ, are *green*, in botanical language, unclouded, except at their points. The paleæ are similar in their form to the glumes, but are without the prickles on the back. Their edges have a whitish tinge with a slightly reddish brown color towards their points. The interior paleæ are more acute and of a whitish green. Between the glumes and the valves and within the latter also proceeding from their interior, at their junction with the pedicels, very fine *Arachnoid Tomentum* like batted silk floss and very white ascend almost to the points of the glumes and paleæ. In each floret there is one stamen and one dygynic pistil. When the flowers expand the anthers of the stamens fly out. Each anther, of which of course there are three, consists of two transformed leaflets dorsally glued together or anastamosing. The outer edges of the lamina of each of these leaflets are curved outwards from their dorsal junction and inwards towards their upper surface, till they meet so as to form two pollen cases or lobes joined back to back. These edges open again longitudinally and form the line of dehiscence when the pollen is to be discharged on the stigmata. They are carinate. The *bifurcation* between the ends of these cells which were the apices of the transformed leaflets is wider and deeper than at the ends which were the bases of the leaflets. Between the curved angle of the latter ends of the cariniate cells the filament passes forming the connectivum. The filament is extremely small, of arachnoid fineness and elasticity, and so long that the three filaments become twisted together very often, soon after the expansion of the flower. The anthers thus formed and connected each with its floret by its fine filament are extremely versatile and in constant trembling motion with the slightest breath of air. While enclosed in the paleæ they are of a greenish white color. After they come out and have been some time exposed to the atmosphere they assume a bluish purple lilac hue. When several panicles in bloom are shaken, the grains of pollen form a little cloud like smoke, but a single grain is invisible to the naked eye of most persons. When viewed through the microscope it is *subrotund* of a dusky leaden color, except in the centre, which presents a white speck. The pistil has two short cylindrical greenish styles standing on a subrotund germen or ovary, like the bodies of short trees from which on every side proceed curved and strait and branching stygmatic limbs, the filiformed silvery subdivisions of which are like the twigs or minute branchlets of a tree. There is a slight depression of the germen between the bases of the styles. In each of the three florets of the flowers there is one of these styles which with its stygmatic branches and twigs of silver is a miniature representation of a tree covered with sleet glittering in the bright winter sunshine. The germen is of a light green color. The stygmatic branches when the dehiscence takes place of the anther cells protude between the expanding edges of the paleæ near their points so as to receive the discharged pollen.

Sometimes four flosculi or florets are found in one flower and in all such cases there are *four stamens* and *four pistils, one pair of these organs being found in each floret*. One flower containing three flosculi or three florets carefully separated with its pedicel from the spikelet just before it bursts into bloom, is like the head of a spear in its form. The apex being considerably more lanceolate than the base. The edges of the lower part of this *lance-head* being formed by the dorsal lines of the glumes show the prickles on them slightly curved, and these points inclining to the point of the spear. The surfaces of this lance-head are slightly convex and it becomes thinner towards the point. If the pedicel were lengthened for a handle it would then represent

a formidable liliputian spear. *The length* of this lance-head is very generally *three-twentieths of an inch* and its greatest *breadth* is *one-twentieth of an inch*, yet it contains three perfect flowers!!

It is very easy to set the egg on end after some Columbus has shown us how it is to be done. So in vegetable physiology it is easy to understand the organization of plants after the splendid genius of *Goethe* has discovered and demonstrated the beautiful and instructive theory of *vegetable transmutation*. We wonder now on examining a flower that we did not before perceive the *certain indications* of the beautiful *metamorphosis*. So symmetrical are its arrangements and so strong the analogies existing between its parts and those of which they are mere transformations. I will send you Nuttall's Genera of North American Plants, in which you will find what he says of *poa pungens* in a note and observation on the poa genus.

JOHN LEWIS.

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### THE MUSCARDINE.

From the Columbia Republican.

The muscardine has long been known in Europe as a desolating scourge, the ravages of which annually destroy from 40 to 50 per cent. of all the worms hatched. It has continued from the earliest period of the silk culture in Europe, and for years past the attention of the learned, and of the French and other foreign governments, has been directed to this terrible malady, and until recently all attempts to discover its cause, or arrest its progress, have been fruitless. The muscardine resisted all reactives and all the remedies employed. So formidable did it become, that large prizes were offered by academies and by private persons for the discovery of its origin, and a preventive. At length, in 1836, a communication was sent to the scientific academies of Paris, by M. Coquand, announcing the important fact that Dr. Bassi, of Milan, after devoting himself for upwards of 25 years to a series of most ingenious experiments, had at length unfolded the enigma. He discovered that the disease was produced by a *cryptogamic parasite*, the germ of which introduces itself into the silk-worm, occasions its death, and then developes itself on the surface of its body, under the form of a farinaceous efflorescence.

When the terrible muscardine declares itself in a cocoonery, it is transmitted with great facility from one chamber to another, and, if it becomes epidemic, successively from house to house, until the whole village be infected. It spreads itself thence in every direction, and invades a locality more or less distant from those in which it is in communication, either by the assistance of the atmosphere, which will have settled upon it the morbific germs with which it is charged, or by the medium of such animals as dogs, cats, mice, or even flies, which, after having been in contact with worms that have died of the muscardine, retain some of the germs, and afterwards drop them on healthy individuals, thus sowing on all sides the generative principle of the contagion.

One of the most favorable causes of propagating the muscardine is to be ascribed to the contamination of the food. This, in fact, by touching an infected carcass, communicates the contagious germs to every thing with which it comes in contact; and especially to the leaves of the mulberry, which, instead of furnishing a wholesome nourishment, will thence become the cause of death.

The persons who attend the silk-worms, or the proprietors of cocooneries, ordinarily retain the fatal seed on their clothes, or on the eggs of the silk-worms which they retain for themselves, or expose for sale.

It is the same with those who reel the silk from the cocoons, and who are the more disposed to receive it, as their business is usually conducted near to the cocooneries.

It often happens that among the cocoons which the reelers buy yearly, they meet with some infected ones, that communicate the germs of the contagion to the furniture of their establishment, upon which the silk-worms of the following year will find a certain death. The contagion may likewise proceed from a silk-worm infected by its abode in a case which contains the muscardine principle.

The disease of the silk-worm being neither hereditary nor spontaneous, cannot affect the silk-worm, as long as it is in a state of embryo in the egg; yet infected eggs cannot be hatched with safety, since, by contact with their exterior surface, the worms become contagious, and communicate the contagion to others near them. The number of deaths increase in a progressive proportion, and a general epidemic is suddenly introduced, which ravages the whole manufactory.

This deplorable result, besides depriving the proprietor of his crop of silk, continues to trouble him in the following years; for the germs which have spread themselves over the walls, vaults, floor and furniture of the establishment, maintain a focus of infection, which renews each spring.

Such is the nature of this terrible disease, as described by Dr. Bassi, from the ravages of which the silk growers in the United States thought themselves secure, and perhaps, thus far, our silk growers have lost but little by diseased worms, although we noticed a short time since that an enterprising gentleman of Cuba, during the last year, had lost his entire crop of worms by a disease he could not arrest, and which no doubt was the muscardine; but the note of alarm now raised may arrest its progress, and thus prevent any very disastrous effects to the silk culture, an enterprise of vast importance to this country.

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### DURHAM STOCK AS MILKERS.

From the Cultivator.

Under this title an article, or speech, is going the rounds of our agricultural and political papers, purporting to be from Rev. Henry Colman, which is pregnant with so much error, and, coming from that high and responsible source, of such mischievous tendency, as I believe it, to the welfare of our dairymen and stock breeders, that although seldom appearing before the reading public, I feel bound at the threshold of its circulation, to enter, as the lawyers would say, my *caveat* against it.

That there may be no misunderstanding in the matter, let me at once remark, that no one can have a higher respect than myself for the exalted

character of Mr. Colman, in all that constitutes the true gentleman and the honest man; and that no individual within my knowledge is so capable to accomplish the responsible and important duties of agricultural commissioner of the proud commonwealth of Massachusetts as himself. I have known him intimately for years, and a knowledge of his worth and of the high authority of his declarations compels me, humble as are my pretensions, to assume an attitude in opposition to his remarks.

The value of the neat cattle in the state of New York, according to the returns of the late census for 1840, is not less than $15,000,000; and probably exceeding that amount. If to these be added those of New-England, which are at least of equal value, it will present an aggregate of thirty millions of dollars, invested in that branch of agriculture alone. Now, if by adopting an improved breed of these animals, the same number, by exhibiting in their improved forms a superior excellence, and an additional value of 33⅓ per cent., which is a very moderate advance in the improved races, it would swell this already vast capital into the round sum of $40,000,000! This fact will at once show that the subject is of immense consequence to our farmers at large, and of no trifling moment to all in its details.

But for the purpose of illustrating my remarks, and even at the hazard of adding to the prolixity of this paper, I will ask you to insert at once the article in question, requesting you also to number each distinct paragraph of Mr. Colman's essay, for more convenient reference:

From the Yankee Farmer.

"As we had not room last week to report all the doings at the agricultural meeting, and as the subject of Durham stock, as milkers, compared with our native cows, is of high importance to farmers, we now copy Mr. Colman's remarks in full, from his own report in the Courier:

1. "Mr. Colman had not intended to enter upon this discussion, but he felt it due to his official relation to the farmers of Massachusetts, to say that he had had the pleasure of seeing the improved Durham stock of the Messrs. Lathrops, of South Hadley, and he thought them eminently beautiful, and evincing great skill and care in their management, on the part of those gentlement. He had seen many of the imported animals throughout the country; and one of the herds imported for the Ohio Company, which he saw on their way, was truly splendid, and in beauty and perfection of form, far surpassed any thing which he had ever witnessed.

2. "He must, however, in justice, add, that he yet wanted the proof of the Durham short horns being the best stock for our dairies. Seven of the race which he had owned, some full and others half-blood, had been inferior as milkers. The quantity of milk given by many of the animals which he had seen was remarkable; the quality, in general, inferior; though he had found some exceptions, which, he believed, were accidental.

3. "The Cheshire farmers, who were as distinguished as any in the country or in any country for the produce of their cheese dairies, preferred the native stock. From a dairy of eighteen cows, an average of 633 pounds new milk cheese to a cow, in a year, had been obtained. He had challenged in writing and conversation the owners of the short horns in the country to prove, by actual experiment, the dairy properties of this stock; and he would furnish a list of a hundred cows of our native stock, which had made from twelve to fourteen pounds of butter per week, through the season. He was far from having any prejudices against the improved Durhams. He was an enthusiastic admirer of them; but he wanted their dairy properties tested by actual experiment.

4. "A very distinguished English farmer, Mr. Shirreff, who had made the tour of this country, expressed his regret at their introduction, and pronounced them in his book the poorest dairy stock in England. We could not be said to have formed any distinct race among ourselves, excepting the trials made by Mr. Jacques, and a long continued improvement carried on in reference to milch cows, in another part of the state, upon which he had reported. Much, undoubtedly, yet remains to be done, but nothing in this respect can be effected but by skill, extreme accuracy of observation, and long perseverance.

5. "He thought the Durhams not well adapted to the scanty pastures and negligent habits of many of our farmers. All high bred animals require particular care and the most liberal feed. Two of the finest oxen ever raised in the country were of this stock. One, it is believed, a full blood from Greenland, N. H., weighing over 3,400 pounds, live weight, and one a half-blood, raised in Claremont, N. H., and sent year before last to England, for exhibition. His live weight was said to be 3,700 pounds; and he was pronounced in England, by the best judges of stock, as unrivaled for weight and thrift, and eminently well formed.

6. "The best breeds would soon run out if negligently or severely treated. This race were undoubtedly well suited to the rich pastures and abundant products of the west of Kentucky and Ohio. There they would flourish. What might be done for our own stock by more liberal keeping, was yet to be seen. He had known a calf from a native cow, at four months old, to weigh nearly 400 pounds; and another, at five months old, to weigh 600 pounds. If the improved Durham stock should prove the best for us, and he kept his mind on this subject open to conviction, we could at once avail ourselves of the distinguished improvements of half a century's skill and toil and expense, so liberally bestowed in England. At any rate, the improvements which they had accomplished in England, so obvious and impressive to the most careless observer, read a most important lesson to us, and showed what might be done by skill and care, by judicious selection, by steady perseverance in a regular system, and by liberal keeping; and presented, at the same time, the most powerful motives to exertion and enterprise in a branch of husbandry, acknowledged by all to be of the first importance."

Now, in reference to paragraph No. 1 of Mr. Colman, I have never seen the herd of Messrs. Lathrop, of South Hadley; but if they are what Mr. C. represents, they must be beautiful and valuable animals, and a great acquisition to their neighborhood, although I exceedingly regret that

he did not give the opinions of those gentlemen as to their value and excellence in the Connecticut Valley, and the results of their experience regarding them. A detail of their observations would have been at least more satisfactory than a summary condemnation without a hearing.

Mr. Colman and myself visited the Ohio Company's herd, which he mentions, together in company at Buffalo in 1835, as they were passing through from the sea-board to Ohio, on their passage out. They were in high condition, as few or none of the cows were then in milk, and we had no opportunity to judge of their capabilities for the pail; although I have since learned that several of the cows were great and rich milkers. It must be understood, however, that many of the English breeders of high bred short horns breed only for sale and the shambles, and do not cultivate the milking qualities of their cattle. This is almost universally the case in Ohio, Kentucky, and the western states, where the dairy forms no part of the farming business, and stock is reared mostly for beef; but from the universal tendency of the true short horns to excel in milking properties, when appropriated to that purpose, I can have no doubt they would show as advantageously over the pail as in the stall. When it is considered also, that owing to their scarcity and high value in America, all the females are employed in rearing their calves, and the bulls, instead of being converted into stores for the shambles, are preserved as stock getters, it is evident that comparatively but few examples can be adduced of their real superiority over the common stock of our country as milkers. Still, a sufficient number of specimens have been shown, both in milk and beef, to demonstrate that in each of these qualities the improved short horns have excelled all that has yet been produced of our native American stock.

In paragraph No. 2, Mr. C. remarks, that he *wants proof* of the milking qualities of the short horns. His own, seven in number, proved inferior milkers, although he admits that several of them, either of his own or which he had seen, were large milkers; but he believes these exceptions to the general rule. That his own cows proved bad milkers proves nothing. What was their blood? Were they of *true* and *improved* short horn descent? No data is here given for us to judge of their properties in this particular, and we are forced to pass on to

Paragraph No. 3. The Cheshire and many other dairy farmers have long had an excellent stock of selected native cows, which have been propagated with particular regard to their milking properties for many generations. Mr. Colman has traversed the whole state of Massachusetts several times, and out of the whole number of cows that he has seen among many thousands, he presents a list of one hundred of the native stock which had made from twelve to fourteen pounds of butter per week. He has also challenged, both in writing and conversation, the owners of short horns to prove their dairy qualities.

I doubt whether one hundred *thorough bred* short horn cows can be conveniently produced at all in the whole states of New-York and Massachusetts, so few are there in comparison with the common stock of the country. Nor do I believe five times that number of grade cows of half-blood and upwards, can be easily found in either state; but I will venture the assertion, that where such cattle do exist, no matter what their parentage may be on the *native* side, if they were directly bred from *improved* short horn bulls, four out of every five of them have proved superior milkers; and at least twenty per cent. better in the aggregate than the *ordinary* cows around them. And I will also assert, that of the whole number of *thorough bred* cows in our country, nine out of ten are excellent, if not superior milkers, and twenty-five per cent. above the *average* native cows. To illustrate this matter, as I have bred a large number of improved herd book animals of the highest blood, within the last six years, as well as many grade cattle from the native, Devon, and other breeds, I will state the results of my own experience, and also the opinions of sundry other breeders, with such facts as a hasty reference will permit.

In 1835, I bred ten or twelve half-blood heifers from three Devon and several common cows of inferior quality and appearance. They were sired by my short horn bull Favorite, bred near Boston, Mass., whose pedigree will be found at No. 2,009, 3d vol. Coate's Herd Book. These heifers proved, without an exception, good milkers; much above the average, both for quality and quantity. In 1836,'7 and '8, I bred several one-half and three-fourth blood heifers, also from Devons and others, which, although many of them were sold, have so far as I have heard from them, proved superior milkers. A part of these were sired by my short horn bull Devonshire, No. 966, 2d vol. Coate's Herd Book. I also had, during the years from 1834 to near the close of 1839, a herd of full bred improved short horns, varying from four to ten milking cows, of which all, with one exception, (and that cow suffered an injury in her udder when young,) were *first-rate* milkers. One cow gave often thirty quarts of milk per day of good quality. Several of them gave over twenty quarts daily in summer feed, and not one of them gave *poor* milk, or, as the term is, milked hard. They were individually easy, pleasant milkers, with beautiful silky udders, and handsome taper teats, and were, taken together, much beyond the average run of native cows as milkers. I have now a Durham cow that has made her twelve pounds of butter per week, and of four full-bloods now in milk, every one is a superior milker. I have also five or six half-bloods, all of which are above the average of our native cows, by twenty per cent. in their milking properties.

To corroborate my experience, I need only mention the evidence of such gentlemen as John Hare Powell, of Philadelphia, who asserted to my father, that one of his full-blooded short horn cows had made twenty-two pounds of butter per week for several weeks in succession; Gov. Lincoln, and Messrs. Wells, Derby, and Dearborn, of Massachusetts, who have been the owners of several grade and thorough bred cows; Francis Rotch, Esq. of Butternuts, in this state, who has repeatedly testified to the superiority of *his* short horns as milkers, and to his entire experience, probably equal, if not superior, to that of any other gentleman in America, of the superiority of the short horns in their purity and in their grades, as milkers. I need not add the names of

many other individuals who have repeatedly testified to these facts, as a reference to our agricultural papers for the last five years will corroborate all that I remark. And last of all, I will assert that Colonel Jacques' fancifully ycleped "Cream-pot" breed of milkers, and which I saw in company with Mr. Colman himself, are simply a cross of a thorough bred short horn bull with a native cow, then at Col. Jacques' farm, of good size and appearance, of a deep red color, and with an apparent dash of Devon blood in her veins. His bull that he then used was nearly or quite a thorough bred short horn, and all his heifers were high in that blood. This same stock of cattle, Mr. C. has himself highly recommended in one of his agricultural reports, and we were together living witnesses of the surpassing richness of the milk and cream of these beautiful cows. With a few selected facts, I will close this testimony:

In 3d vol. of Cultivator, page 191. Francis Bloodgood's imported cow (she was a Durham) gave, when her calf was two weeks old, thirty-three and a half quarts of milk per day. Her feed was one and a half bushels of brewer's grains per day, with hay.

In vol. 7, same work, page 132. Mr. Gower's short horn cow Dairymaid, for seven days gave an average of thirty-three and a half quarts per day.

In New Genesee Farmer, vol. I, page 143. Samuel Canby's short horn cow, Blossom, yielded for seven days over thirty-five quarts per day, which produces thirteen and a quarter pounds good butter.

At page 149 same vol. John Weterhull's short horn cow, four years old, gave from twenty-six to thirty and a half quarts of milk per day, and in one week produced eleven and a half pounds butter, and in another week fifteen pounds.

In a Philadelphia paper of 1839. "Colonel Wolbert's cow Isabella, a pure short horn, gave, during seven days 194 quarts, or near twenty-eight quarts per day, which produced fourteen and three-fourths pounds butter of the finest quality." So much for the assertion that "Durham cows are not good milkers."

In paragraph 4, Mr. Colman introduces us to the distinguished English farmer, Mr. Shirreff, who has made the tour of this country. If this same Mr. Shirreff, who by the way I never heard of before, be as profound in his remarks upon our country, its inhabitants and their pursuits, as the herd of English travellers who have hitherto trundled rapidly over it for the purpose, as it would seem, of writing libelous books and holding us up to the ridicule of Englishmen at home, his opinion is little to be regarded. His knowledge of the progress of short horns in his own country may be well estimated, when he remarks "that they are the poorest dairy stock in England." To this remark I need only observe, that nine out of ten of the intelligent English farmers who emigrate to this country, and all British publications on the subject, assert precisely the contrary; for the high grade, and often the thorough bred short horns, have been for many years past taking the place of other breeds for dairy and milking purposes in the grazing counties, and near the large towns and cities. That *he* should regret the introduction of any thing tending to advance our agriculture, and our wealth, is altogether natural in an English book-making tourist. I am only surprised that a gentleman of Mr. Colman's shrewdness should be thus easily deceived. As to the "*distinct* race of American cattle" to be yet formed, the end of all this is to be seen in the continual efforts at blending incongruities by those experimenters who strive, without an accurate knowledge of their subject, to produce what is already better made up to their hands in the improved breeds now extant. Such experiments, as they live and learn, have been always abandoned as impracticable and visionary There is, nor can be, no such thing as a "distinct American breed," made up as all our cattle are from selections from all parts of Europe; nor, if our agriculture is to be, as we hope, progressive in its excellence, is it desirable. Our cattle should improve with our general agriculture. The last sentence of Mr. C.'s remark is very just, and concedes, as we view it, the *gist* of what we commend.

In paragraph 5, Mr. C. gives us the only good reason why Durhams should not become the stock of New-England, to wit: the poverty of its soil, and the negligence of many of the people! Truly a very broad admission, hardly just, indeed, to the snug farmers of New-England, and not at all within the desideratum for which the advocates of short horns contend:—improved husbandry, improved care, and improved stock. If, upon lands, a thousand acres of which will scarcely graze a goose, and from which the very vermin instinctively flee to escape starvation, the beautiful short horns are to be doomed to pine, without care, and without sympathy, I at once admit that the less of them the better. Nor do the miserable animals of the native breeds even, which are doomed to a wretched existence on those "scanty pastures," exhibit any signs of thrift as they daily suffer from the "negligent habits of their keepers." True, a long course of neglect and starvation endured by their ancestors, and perpetuated for many generations anterior to their own existence, may render their wretchedness more tolerable than it would that of a better animal; but what advocate of any sort of improvement is content to bind himself to such hopeless sterility? Did we desire a race of animals that would *starve* the best, we could at once make an importation from the Shetland Islands, and establish a *Shetlo*-"American breed" that would bid defiance to neglect and poverty, and flourish amid both frost and desolation!

But this proposition is not within the category of *our* system. We hold, that if land be worth cultivation at all, it should be at least in a reasonable state of fertility. It should yield in any event a tolerable share of its various products under good and kindly attention with which to feed well the stock of the farm. If cows are not to be decently fed, by no means keep the Durhams, or any other valuable breed. But if it be intended to give "value received," to feed well, and pay attention to your stock, and there is no other way to make any kind of stock profitable, then let the breed be as good as possible, and of as high a grade in blood as *the nature of your soil and the climate will permit*. The admissions made before the close of this paragraph, of the enormous

weights of the Durham ox with good keeping, admit to the fullest extent all that we claim, when abundance of feed is given to the animal.

In the 6th and last paragraph, Mr. C. doubts whether the Durhams are, after all, not the best stock for us to have, and candidly admits that his mind is yet open to conviction. Now this, after making the round assertions and denials that are above exhibited, is not exactly what we should expect from one of his observation and astuteness. It is indeed too much in the vein of the old adage: "Hang him first, and try him afterwards." In this last paragraph, all is admitted that the advocates of the short horns desire. We have never asserted that they would produce great quantities of beef, or of milk, without sufficient food; nor would they thrive under continual ill treatment, neglect and abuse; nor, indeed, will they bear *so much* starvation and ill treatment as some of our native cattle; but we do fearlessly assert that either thorough bred or grade short horns will produce more beef, and more milk, each in their own proper time, with the *same quantities* of grass, hay, or other proper feed, than any breed of cattle ever introduced into this country; and so have they thus far done in England.

My own cattle have never been highly kept. On the contrary, owing to my farm being at some few miles distance from my residence, and therefore not having my daily attention, my herd always received but ordinary care, and sometimes, I regret to say, not even that. But I do say, that so far as my experience has proved, they have, from the highest bred Herd Book heifer, down to the lowest grade, (never less than half blood,) been as healthy and as hardy as the common stock of the country, kept side by side with them. The opinion, therefore, that Durhams are to be rejected for want of hardihood, or constitution, is but a prejudice that deserves to be exploded.

Still I am no enthusiast in this matter. I would not recommend every farmer to introduce into his farm the Durham cow. On the contrary, on very thin and light soils, I would not introduce them; nor any thing else that ever lived on a luxuriant one. But I do say, on lands natural to grass, which afford a fair yield of pasture and of hay, where either the dairy or the fatting of beef, or even the rearing of cattle for sale, be the object, judging from my own experience, and corroborated by that of others who have tried a single cross upon our native, or *any other breed* of cattle, no matter what, even up to high grades, the Durhams are altogether the most desirable, both for appearance and for profit; with the exception, perhaps, of the Devonshire, if the climate be very rigid; and they are no milkers. Were I a dairyman, and desired to grow up a race of the best and most profitable milkers I would select the best native cows within my reach, then obtain a thorough bred short horn bull of a good milking family, and raise my heifers to as high grades as in their natural course would be produced, always using a *thorough bred* bull, for in no other way can the excellence and the true characteristics of the race be perpetuated. Did I, however, admit of any other foreign admixture, it should be a cross of the Devon to give additional snugness to the form; and then but a single *cross*, for more than that would degrade the milking qualities of the herd. These animals, bred as they would be from native cows, would inherit their constitutions and habits, and become identified, as much as the most ordinary stock, with our soils and our habits of keeping. In this way should we at once gain all that we desire, without sudden or prejudical change.

In 1835, my father imported a most beautiful and valuable cow from England, one of the finest animals and best milkers I ever knew; a very hardy, thrifty, and easily kept animal. She brought us three very superior bull calves, all from short horns. They were like herself, of peculiar conformation and character, being the most compact in their figures, possessing more weight in a given compass than any animals I ever saw. In the fall of 1839, the cow, and her then sucking bull calf, were sold to Norman C. Baldwin, Esq. of Cleveland, Ohio, for $800; her two year old bull calf, "Red Jacket," to Mr. Sullivant, of Columbus, Ohio, for $400; and her yearling bull calf, "Sam Patch," to J. H. Hepburn, Esq. of Jersey Shore, Lycoming co., Pa. for $200. Had I at that time known the exceeding value of that family of short horns, I should certainly have reserved one of them. My bulls have proved in the highest degree valuable as stock getters, stamping their calves in the first cross with deep characteristics of their own blood, and no doubt, laying the foundation of a race of milkers that will yet be famous in their respective localities. They are estimated as they should be, almost beyond price. I name these particular animals, because they develope in all points of hardihood, endurance and kindly feeding, the valuable characteristics we desire in our farming stock, and fully corroborate all that I have remarked of rearing up a *native* stock from judicious crosses of pure short horn bulls.

Many years ago, the agent of the Holland Land Company, Mr. Otto, purchased a thorough bred short horn bull from Mr. Powell, of Philadelphia, for the benefit of the settlers of the company lands in the counties of Genesee, Cattaraugus, and Chautauque, comprising some of the best grazing and dairy counties of the state. As the services of the bull were obtained for little or nothing, and as he was kept in successive seasons in each of the counties above named, a general sprinkling of his stock was soon scattered throughout those regions, and some as high as three-quarter bred animals were raised from his progeny. The bull lived many years, and proved an excellent stock getter. Many of the cows now ranging about the streets and commons of Buffalo and Black Rock, which have been brought in and sold from these counties, are of this stock, and are distinguished for their superior appearance, and, so far as my inquiries have extended, they are of the finest quality as milkers; and yet none but those who are conversant with the Durham blood know that they are any thing but common cows. These cows are celebrated among many of our dairy farmers for milkers; and numerous fine and extraordinary fat oxen that have been slaughtered at Buffalo from the surrounding country, were descendants of the "Otto bull," either of the first or second generation.

I have now done with the speech of Mr. Colman, which, for his own sake, and the welfare of

our agriculture, I regret he had not more maturely considered. Yet, if he be still sanguine in his confidence of the superiority of the Massachusetts "native stock" as milkers, could the thing be made practicable, I would gladly make a trial of merit by actual test. I would propose that Mr. C. or his friends produce ten or twenty cows, which should be a *fair average* of the native stock, without admixture of foreign blood; against which, I would produce a like number of grade, or thorough bred short horns, of *average* quality, or taking them as they rise, in any fair herd. The time of their calving should be noted, and the cows should be of nearly corresponding ages —the trial should commence on the first of June, and continue one month; the cows all to be kept in one field, or in as good grass, and on pasture only, as each party should please, if not convenient to bring them together. The quantity of milk should be accurately weighed, and the produce, either of butter or cheese, duly registered. When the trial should be fully made, the winning party to be entitled to the whole herd, with the product, after paying expenses. If the advantage should be on the side of the native owners in value, as it probably would, each animal should be appraised, and a sufficient sum to make up the difference should be deposited to render the premiums thus submitted of equal value. This would test the whole question, and give it sufficient of interest to engage in the trial with spirit. The season is, perhaps, now too far advanced to make the trial this year; but if this proposition be accepted, I would enlarge it, and name the first day of November next, for selecting the animals on both sides; they should be then placed together on one farm, and both subjected to the same treatment through the winter, and kept together till the trial was thoroughly made, which, if either party preferred, might extend through the next season, or until the first day of October following.

If it be objected, that this proposition will incur too much expense, or inconvenience, I will at once propose that Oneida county, in this state, shall be the place of trial; and that myself, or my friends, the advocates of the short horns, will furnish a farm for the operations, the fitness of which shall be assented to by the other party. The importance of an accurate knowledge on this subject is a sufficient object for such a trial, and it is perhaps the only method of testing this mooted question fairly. It will be readily seen, therefore, that this proposition arises in no spirit of banter, or gambling, but in that of an earnest desire to settle an important and doubtful point, of great interest to our agriculture generally.

I may, at a future time, pursue this subject further, but have for the present trespassed sufficiently upon your patience.

LEWIS F. ALLEN.

*Black Rock, April* 10, 1841.

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### SALES OF BERKSHIRES.

From the Cultivator.

Mr. Lossing, of this city, informs us, that he has recently sold his famous breeding sow *Maxima* to Mr. Curd, of Kentucky, for the handsome sum of $300. The animal is well known to breeders of Berkshires, as one of the largest of her kind in this country. Mr. Lossing has also sold his imported boar *Newberry*, to the same gentleman, for $200. He was shipped a few days since, and weighed, including cage, 880 lbs.

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### THE FARMERS' REGISTER, AND ITS COURSE IN REGARD TO THE BANKS.

Our good and highly esteemed friends, the editors of the Richmond Compiler and the editor of the Petersburg Statesman, have lately gotten into a small controversy, in which our journal is the matter in question; and in their cuts and thrusts across our body, the blows do not reach the antagonists, but fall short upon us. To the first article, of the editors of the Compiler, we took not the slightest exception. Their kind expressions of approbation we appreciated, as the unsought, disinterested, and candid opinions of friendly and favoring judges. Their exception, conveying censure on a particular point, did not at all lessen our gratefulness of feeling for the previous approving expressions, nor abate one atom of our always kind feelings towards our friends of the Compiler; and, quite willing to submit to their censure, or to let it pass for what it was worth, we did not deem it necessary to reply, for the purpose of defence, and still less for recrimination. But our also good friend of the Statesman, by a jocular squib, or paraphrase of the censure, has drawn forth a rejoinder, of which we are still the subject, and which seems to require something of defence; and which we shall offer in all courtesy and kindness, and in the same friendly spirit towards our friends of the Compiler, as is manifest throughout their censure, and also in their general praiseworthy deportment towards those whom they oppose. If we fail to convince them (as is most likely) that they have viewed our course through a false and distorting medium, we trust that we shall at least leave them satisfied that we view them as much our friends as before, and as we have long had reason to deem them. But lest we should fall into the unfair mode of controversy usual with most editors, (and which we have always avoided,) of replying to an opponent before presenting the article replied to, we will here present at length all the three articles referred to, and then submit our defence.

"Mr. Ruffin's Register, of date May 30th, is received. Its table of contents indicate much useful matter for the farmer; and we trust the Register is meeting the encouragement it deserves. We beg leave, however, to except to some sweeping phrases which the intelligent editor is pleased

sometimes to employ when speaking of banks, and which cannot subserve the purposes of candid and fair discussion.—*Richmond Compiler.*

"The Compiler contains much useful matter, and we trust is meeting the encouragement it deserves. We beg leave, however, to except to some sweeping phrases which the intelligent editor is pleased sometimes to employ when speaking in favor of banks, and which cannot subserve the purposes of candid and fair reasoning."—*Petersburg Statesman.*

"*Farmer's Register.*—The Petersburg Statesman takes up the cudgels for the editor of the Register, and retorts upon our "exception" to certain sweeping phrases in the Register against banks, by charging upon us the employment of like phrases in *favor* of banks. Now we reckon Mr. Ruffin will hardly thank our friend of the Statesman for such a defence; our errors, admitting the justice of the retort, are certainly no justification for the Register. We feel assured, however, that the Statesman cannot find in our journal arbitrary conclusions or denunciations on this subject, that will fairly offset some we could point out in the Register. But we object thoroughly to a contrast between the Register and our paper. We claim as a privilege to indulge a degree of flippancy which the Register is on every consideration prohibited from adopting. We have a right to be slipshod philosophers and political economists—the Register none. Our daily journal requires an expedition and despatch that does not afford time for grammatical propriety, let alone mature reflection—a momentary excitement cannot subside ere an indiscretion it may induce is held up before the world—there is no time for sober second-thought, no time for better judgment to modify, or for taste to improve. But the Register, a monthly journal, conducted by an accomplished scholar and intelligent gentleman, with time for reflection, for leisurely composition, and then for pruning according to critical propriety and even adding the charms of beauty—we say the Register can urge no such excuse, and can claim no such right. We have always been proud of the Register as a *southern monthly*; for its ability and its valuable scientific and practical information: and we must contest every inch of ground when it comes to encroach upon our commons. But we repeat we do not suppose Mr. Ruffin would set up a defence similar to that of the Statesman, and may be we are saying more than necessary.

"By the way, we see that the Lynchburg Virginian has expressed itself somewhat in the same vein we did, without possibly having seen our 'exception.' It says, 'Has Mr. Ruffin changed the character of his Farmers' Register? Instead of telling the farmer by what means he may draw wealth from his banks of earth, he seems disposed to make an exterminating war upon banks of discount and deposite. [Which were in fact advocated, instead of being warred against.—Ed. F. R.] His essays may be very original and profound for aught we know; but it seems to us he ought to select some other channel to convey them to the public.'"—*Compiler.*

Now the whole question is, whether, in considering the operations and effects of banking and paper currency, we have altered the *plan* of the Farmers' Register, or varied in an important or censurable degree from the designed and proper general procedure. We deny the justice of the charge, and appeal, without fear, to the facts of the case, for our justification and acquittal.

In the earliest published prospectus of the Farmers' Register, and which was inserted in the first number, (p. 64, vol. i.) and republished often afterwards, the subjects to be embraced in the work were stated and numbered under eight distinct heads, as follows:

"1. Original communications of experiments, observations and opinions on agriculture, gardening, and domestic economy.

2. Selections from the best periodical publications on agriculture, European and American, and from such other agricultural works as have not been published in this country, or are not generally accessible.

3. Reviews or notices of agricultural works.

4. *The discussion of such subjects of political economy as are connected with the preservation and support of the interests of agriculture.*

5. Chemistry as connected with agriculture—and, with the same limitation, botany, mineralogy, geology and natural history.

6. Reports of the topography, soils, minerals, peculiar manures, and actual state of agriculture of every county of Virginia, from which such information can be obtained.

7. The consideration of public improvements by roads, railways and canals.

8. Discoveries in science, or the arts, and the occurrence of other events that are considered likely to affect the interests of agriculture."

Now of these eight classes of subjects, the two first only relate exclusively to agriculture or domestic economy, to which heads the editors of the Virginian and the Compiler seem to think we are pledged, and bound to confine our articles exclusively. The third class would be generally, but not exclusively of that description; and the five other heads are of other classes of subjects, all at least as remote from practical agriculture as the consideration of banking frauds, and the bearing of the banking system on agricultural interests. But this is not all. The fourth head (copied in *italics* above) distinctly embraces (and was designed to embrace) the consideration of this, as well as other like subjects; and if we had failed to treat of this one, and boldly and fearlessly, when required by the suffering interests of agriculture, we should have forfeited the pledge there given, and have proved recreant to that noble cause, to the support of which we have devoted so many years of our life. We unfortunately differ with our friends the editors of the Compiler, and the Virginian, as to the bearing of this paper system on agricultural interests. *They* think it highly beneficial—and thinking so, we would not blame them for advo-

cating it, whether they were conducting commercial or agricultural papers. *We*, on the contrary, deem the system dishonest, flagitious, and especially injurious to agricultural interests, as well as to the general interests, morals, and happiness of the people. Surely then we are right, upon every ground of duty and of pledge, expressed or implied, to attack and expose this iniquitous system. It is possible, and probable, that, in attempting this contest, almost alone, against such powerful and overwhelming odds, we have been rash and imprudent, and have risked our individual defeat and destruction, without hope of success for our cause; but if so, and our cause be good, and the quarrel just, the blame and the disgrace should be on those who, approving the course, hang back from the conflict—and not on us, who have dared the unequal contest. We may, and probably have, argued feebly and impotently; but, if so, we have perhaps written or selected as badly, and certainly as voluminously, on all these "five points" of (what our censors ought to pronounce equally) illegitimate discussion, without being charged by these editors, or any other persons, with "travelling out of the record." Indeed, we must plead guilty of having admitted very many articles in these volumes, which we deemed likely to instruct or entertain our readers, but which, if tested strictly by the plan, would belong to none of the heads of subjects stated in the prospectus. And why were we never blamed for these admitted deviations? Simply because the deviations were upon immaterial subjects, the course of argument on which could not affect the interest of any reader, or any class of the community.

But even if our prospectus had not distinctly stated that various other subjects besides matters of practical agriculture were to be embraced in our journal—and even if our procedure had been conformable to the prospectus, from the beginning—it would have been absurd to expect to fill all the 768 large pages of each of our annual volumes, with matters merely and exclusively agricultural. Throughout our eight completed volumes, a large proportion of each volume, and generally of each number, has been filled with other subjects than those of practical agriculture; and articles on no other questions have been deemed more important, and more willingly admitted, than "the discussion of such subjects of political economy as are *connected with the preservation and support of the interests of agriculture.*" If the present condition of the banking system of this country does not strictly come within the *imperative requisition* of those words of our prospectus, then we are unable to conceive any possible case that could be therein embraced.

Our friends of the Compiler have never before objected to the large proportion of our pages which have been devoted to the many subjects we have before thought proper to embrace; neither to the discussion of the policy of public works, roads and canals—(though we, like many others, *went mad* on that subject, and have paid dearly for our great folly—) nor to the treatment of subjects of natural history, though totally unconnected with agriculture—nor to any previous questions of political economy. It is only when we have made war upon the paper banking system that our friends deem it necessary to censure and protest against what they deem an illegitimate procedure, and a departure from our proper limits. Now, if we had taken an opposite course, and, like our brother agricultural editor of the American Farmer, had taken the strongest ground *in favor* of the paper credit and banking system, we ask of our friends and brother editors, and appeal to their candor for the answer, whether they would have thought it necessary to check and reprove us for departing from our proper course and vocation? We may fairly infer not; for we have never before heard of any one, editor or reader, who found fault with the subject so undertaken in the American Farmer, as unsuited to an agricultural journal. We copied that piece at length, (beginning at page 156 of our current volume,) and endeavored to meet its argument; but we did not in the least question the propriety of the subject being introduced by the editor, or his sustaining that side which he deemed most beneficial to agricultural interests. We, on our part, have but done the same; and even if we had no *better* warrant, we might justly thereupon claim the like privilege, and equal toleration.

We have confined our defence to the main question, (the propriety of the discussion of the abuses of banking, and the effects on agriculture,) and do not mean to be drawn off to subsidiary and immaterial issues. We shall therefore not defend the *manner* of our argument against the censure of the editors of the Virginian—especially as their few words of censure show that they had not read the article censured; nor could we expect them to read what would be so unpalatable. Another minor objection of our friends of the Compiler is the harshness of our expressions and denunciations. This plain dealing is called for by the subjects treated. We have ever been accustomed to call things by their right names, so far as we can judge of them; and we will not seek for "holiday terms," and polite and deferential expressions, to designate what in private individuals would be

called lying, fraud and swindling, because the operators referred to happen to be corporate bodies and bank officers and boards of directors.

But, it may still be asked by those who condemn us, why, of late, fill so many of the pages of the Farmers' Register with this one subject? We are sensible of this objection being proper; but it could not well be otherwise, while publishing the long article on the abuses of banking which is now completed. Our object was to present the subject in the plainest possible manner, and suited to attract the attention of the farmers of our country; and to have occupied less space, or embraced more time in publication, would have weakened the desired effect.

Our opinions on the evils of banking are not new. They date from our boyhood. Neither have they been hidden from the readers of this journal, as sundry of its articles will testify, any more than from our associates. But it is very true, that, until recently, no regular, systematic, or even frequent opposition was shown to the system; and for this sufficient reason, that *all opposition was then deemed hopeless.* But not so recently, and now. There is good ground on which to build hopes of the reformation, if not the utter destruction, of unsound and irresponsible banking, and the fraudulent paper money system; and while hope remains of that result, we will lend our feeble powers to aid its consummation; and shall entertain no doubt or distrust that, if the victory shall be achieved, its greatest fruits will fall to the share of the agricultural interest, in the subsequent entire security of agricultural property and labor from being, as heretofore, appropriated at will by privileged corporate depredators, operating by means of legal privileges, and the fraud of irredeemable paper money.

While we receive the reproof of the editors of the Compiler as an admonition from true friends, and have replied to it sincerely in the like good feeling, we trust that they will permit us to give them, in return, a friendly hint in regard to the subject in controversy. We have not only perfect confidence in the friendly disposition of the editors of the Compiler, but also in their good judgment, in all matters with which they are conversant. But we beg them not to submit their own excellent judgment, in our case, to that of *other persons*, who, under the profession of being sincere friends to agricultural interests, and to the Farmers' Register, as their advocate and exponent, really are aiming to silence our publication, not (as they profess) because of their devotion to the agricultural, or to the general interests of the country but because of their devotion to, or connexion with, the paper banking and borrowing interest. It is this class which furnishes the main support to all commercial newspapers; and it is to the most intelligent members of this class that such newspapers naturally and properly look for information and advice, and suggestions in commercial matters. We fully admit the competency and superior ability of such persons to prompt and advise the measures that will best promote their own interest, and that of the class to which they belong. But we beg our friends of the Compiler to have a reasonable degree of distrust and caution, in regard to the opinions of all such persons, when they undertake to act as the advocates of agricultural interests, and as censors of any one of the very few persons or publications that will dare to denounce and expose the plundering of agriculture by the fraudulent paper money system.—

Ed. F. R.

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### THE NEW THEORY—SAVING EGGS.

From the Journal of the American Silk Society.

The principles of the New Theory require the most regular division of eggs, as it respects the time they are laid. To carry out those principles perfectly, all worms hatched on a particular day should be kept separate from all others; all that moult in one day should likewise be separated from the others. So also in saving eggs, the millers that begin to lay eggs on a particular day should be placed upon particular papers, so that all the eggs on any one paper will be laid on the same day. The papers should then be marked with the date at which the worms that produced the eggs were *hatched*, and also with that of the laying of the eggs. Thus, a lot of worms is hatched on the 10th of May, and the moths begin to lay eggs on the 20th of June; the marks on the papers will be "Hatched 10th May, 1841—laid 20th June. 1841." This may seem a troublesome business, but really it is not so. All the trouble will not occupy as much time as is required in the above description of it. In practice it is nothing. When the millers begin to lay, all you have to do is in the morning place as many of them on one paper as it will hold, and mark that paper as above with a pen. Next morning take away the paper of yesterday, (as the moths will all have finished laying,) and place fresh paper in its place, and fill it as before; taking care, of course, to dispose of all the millers in this way each day. It is a curious fact, that nearly all insects hatch, moult, and commence all important changes and operations in the morning, and this is particularly the case with silk worms.

We are not in the habit of requiring particular processes, without giving good reasons for it. The reason, then, of the above requirements, is as follows: suppose a lot of eggs occupy a week in hatching, which is not unfrequently the case, although we always recommend that none be saved but those of the 2d, 3d and 4th days' hatching. If all these worms are kept promiscuously together, they will also require at least a week to

mount for forming cocoons. That is, those that hatched the 1st day will mount first, those hatched the 2d day will mount the next day after the first mounted, and so on to end of a week, or probably ten or twelve days. The consequence is, some worms are spinning cocoons, some feeding, and some even in their last sleep, all at the same time producing great confusion and much waste of time and foliage. But the evil does not stop here. The cocoons having been spun thus irregularly, will also be in confusion. The moths of those first commenced will be cutting out, or ready to do so, before the last have half finished their cocoons, and thus in any event a considerable loss will be sustained: for if you kill the chrysalis in time to save the first formed cocoons, you kill the worms in those which have half finished; if you wait for the last to finish, those of the first will cut out and spoil their cocoons. But if eggs of one day's laying only are on each paper, nearly if not all will hatch simultaneously on the same day; and it is also a curious fact, (developed by the New Theory,) that several parcels of eggs laid, say on the 1st, 2d, 3d and 4th of July, of last year, will hatch this year in the same rotation, if they have been kept and treated in all respects alike. It is expected to be proved, that the only reason why all parcels of silk-worms' eggs require from four to six days to hatch, (from the time they first begin till the last hatches,) is simply that the same number of days were occupied by the moths in laying them. It is freely admitted that this looks like hair splitting and, as has been said, "French refinement," but when the principles of the New Theory shall have been thoroughly understood, and critically examined, the above will be found to be nothing but natural results from natural causes.

One more remark. The papers should be kept as clear of filth as possible, especially the liquid discharged by the moths before they begin to lay eggs. This can be done by suspending the papers perpendicularly on the sides of the room. The moths will not fall off till they have done laying, and when they discharge the liquid it will fall upon the floor. The reason the eggs should be free from all such filth is, that it, not possessing the principle of life, as the eggs do, soon putrefies and evolves deleterious gases, which in close vessels may destroy the vitality of the eggs.

G. B. S.

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## FIRST FRUITS OF THE SEASON—SUCCESS IN SILK-MAKING.

From the Journal of the American Silk Society.

[The following letter contains most gratifying intelligence. The respected writer will excuse its publication, on account of the cheering hopes it will encourage. The writer of this letter has now feeding (a portion probably spinning cocoons) about 600,000 worms. He practises upon the principles of the New Theory, and uses lime freely, according to the lately discovered virtues of that article. The success of Mr. C., mentioned in the letter, with his first and very early crop, is pecularly gratifying, and shows what can be done under the worst possible circumstances, by skill, care and persevering industry. His experience with the use of lime establishes the great value of that material as a preventive of disease. The successful experiment of keeping a few worms in a temperature of 100° mentioned in the letter, should not induce any one to suppose that they will certainly succeed equally well with a large crop. There were too few worms, and probably no rubbish, to cause injury from foul air. We throw out this hint merely as a timely caution. It is *possible* that silk-worms may be capable of enduring this high degree of heat for a period of seventeen days, but we do not conceive it at all probable—at all events it would be a difficult matter for their human attendants to do so. It is a curious fact, however, and ought to be further experimented on.—Ed. Silk Jour.]

*Virginia, May* 23, 1841.

*My dear friend,*—For the past week the weather has been very fine, and the silk worms have sensibly felt its genial influence. I ought to have some beginning to spin by this time, but the cool wet weather has retarded their progress very much. I hope it will be better now. My worms look exceedingly well notwithstanding. I spent a night with C. C. during the early part of the past week. He is in high spirits. A brood of early worms, amounting to about 30,000, had nearly all ascended. He had kept them in his hatching room, at a temperature of about 76°. One or two hundred which he kept on the mantel-piece immediately over the fire, in a warmth of about 100°. began to spin in 17 days. I never saw finer cocoons than they all were. He thinks he can now effectually banish disease from his cocoonery by the use of lime. He says he would not be willing to express fully what he really thinks of its effects and advantages. He will proceed on your system in regard to hatching, though I do not think he holds what is vulgarly termed "book larning" in very high estimation. But his incessant application will enable him to do as well as any man. He has thought of an entirely new thing for the worms to spin in; namely, whortleberry bushes.* A bundle of them set up and spread at top like broom corn, displays the cocoons to great advantage, and the worms are highly pleased with the fixture. I have heard from no other cultivator; but whenever I gain any information, I will communicate it to you.

I have had a great many eggs to hatch this spring; and I have uniformly observed that the difference of even a few days, in the times of hatching last year, shows itself now. I have been almost astonished at it. The eggs too have not been on ice, and have been kept under precisely the same circumstances.

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* Our respected friend is mistaken in supposing this a new thing. Whortleberry bushes were often used in the early days of the silk experiment here, say ten to twelve years ago. The editor used them, as well as several of his acquaintances. They answered remarkably well.—Editor Silk Journal.

### FOUNDERING.

From the Kentucky Farmer.

This disorder is produced by several causes. It is certain that the greatest part of all diseases, except in cases of accidents, proceeds from the derangement of the stomach, which may be compared to a still, that after having extracted all the substance from our food, distributes it in each part of the human and animal body. If the functions of the stomach are arrested, from whatever cause, the whole body feels it, according to its predisposition; this is called sickness, and is more or less dangerous, according to the weakness or strength of the natural constitution. The horse, although much stronger than man, having been taken from the state of nature, has shared the laws of civilization and been subjected to many of its evils by his owner; for in his primitive state, he knew certainly very few disorders, if any; hunger, thirst, excess of labor, and above all, neglect, contribute to all the disorders of this animal. We should never forget that although some of the brute creation seem to have been formed to help and delight mankind, yet the abuse of their faculties is a great fault, to say no more. In this, as in many other instances abuse is punished by privation and loss. Moderate labor, good food and care will prevent many accidents, and keep a just medium between the state of nature and the social order, into which the horse has been admitted: 1st. One of the causes of foundering is the exposure of the animal to all the changes of weather, without either stable or shed, in which he could be sheltered if he wants it. 2d. If after hard labor of any kind, and sweating, the horse is left in the rain, or even in the sun without having been rubbed dry, and not suffered to cool gradually. Foundering is peculiar to animals whose foot is entirely wrapped in the horned hoof, it is the swelling and obstruction of the blood vessels in the interior of the hoof, sometimes in one foot only, more often in two, and even in the forefeet, or it attacks them one after the other; when the hind feet are attacked, the weight of the body bearing on the forefeet, and the horse cannot walk without much pain, and must not be urged to do it; it is then necessary to separate him from the others. Besides the external symptoms, there is a great heat in the pastern, fever, distate, and costiveness. A suppression of perspiration, water drank to excess, sometimes on an empty stomach, during a long and hard ride; eating too much corn or green grass, perhaps a disposition of the body, may be considered as the immediate causes of foundering. If there is much fever, as is generally the case, the horse must be bled copiously, and the blood received in a vessel; so as to know both the quality and quantity that is drawn; injections must be given; very little hay, no corn, and bran or meal in his drink; the upper part of the foot above the hoof shall be rubbed with strong vinegar and sifted soot, even make poultices of it, and change them several times in the day, (clay mixed with strong vinegar is excellent.)

N. B. The application is good, also, for any person whose foot is sprained.

If the horse is shod, he must be unshod as soon as possible; he must be purged with gentle medicines, this point cannot be too much insisted upon, as harsh drugs are pernicious to man and beast, and wear out the best constitution. Such a treatment will soon cure the horse if done immediately, for like many others, it is easy to cure if taken in time, otherwise it may cause the loss of the hoof, and perhaps that of the horse, who is, at least, rendered useless for a long time, if not for ever. To do every thing in time insures success to a farmer, and as horses are his principal help, be will gain much by attending to them so as to remedy any of their disorders as soon as he finds them out.

Early rising and going to the plough, or on a journey, at three or four o'clock in the morning, in the summer, stop at ten, and begin again at three or four, afternoon, until night, is the best mode of working for man and beast, other work may occupy the hands in the interval.

W. MENTELLE.

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### WORK OXEN.

From the Kentucky Farmer.

I see that a number of persons think that the Durham cattle do not make good oxen. I have had more than half the work on my farm performed by oxen ever since I commenced farming, and have found it much most profitable to work oxen with Durham blood in them, generally from half to seven eighths. They walk well, are very strong and are more gentle and docile than almost any other cattle, and then they are so easily turned into beef whenever we wish to part with them. I always have sufficient employment for my work oxen to prevent them from getting too fat to work well. The formation of the Durham stock shows great power, and their walk when lean is very good. I have frequent occasions to send an ox cart to Lexington, and they always make the trip in a day—the distance there and back is twenty-eight miles. I work them in yokes and bows.

SAML. D. MARTIN.

*Colbyville, Ky.*

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### THE BOARD OF AGRICULTURE.

From the Richmond Compiler.

The board of agriculture, for the appointment of which a bill was passed by the last legislature, has been appointed by Lieut. Governor Rutherfoord, and their names will be found below. The authorization of this board was an act of uncommon liberality of the last legislature—and will no doubt cause it to be gratefully remembered for generations, we may say ages to come. Most wisely, most generously did they authorize the governor to select two individuals from each of the four great sections of the state, who were to meet yearly alternately at one of the principal towns or cities of the different sections, discuss agricultural and other interests, decide on the best policy for the Old Commonwealth, and report their views and decisions to his excellency, to be laid before their sapient legislatorships at their next session. Now in consideration of so *important a privilege* to said board, (a privilege

plainly denied unless so granted,) in view of the towering honors, thereby bestowed, the legislature in their wisdom thought it would be altogether superfluous to append a small *per diem* allowance for the labors of said board, for their absence from home and consequent neglect of domestic concerns. Which conclusion was very just, very charitable—conferred heavy obligations upon the agricultural community in general and upon the board in particular. With such wise and *liberal* legislation who can set bounds to the improvement of the Old Dominion?

*Board of agriculture appointed by the executive.*

For the division of the state lying upon tide water:

James M. Garnett, of Essex, and
Edmund Ruffin, of Petersburg.

For the division between the head of tide water and the Blue Ridge mountains:

James Barbour, of Orange, and
Richard Sampson, of Goochland.

For the division between the Blue Ridge and Alleghany mountains:

Nathaniel Burwell, of Clark, and
Edward Watts, of Roanoke.

For the division west of the Alleghany mountains:

Joseph Johnson, of Harrison, and
Peter H. Steenbergen, of Mason.

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## MONTHLY COMMERCIAL REPORT.

For the Farmers' Register.

At this season of the year the tobacco trade is the only very important one in Virginia, our markets being almost bare of other descriptions of produce. From this cause flour has advanced to $5¼, and corn to 60 to 65 cts., per bushel. Cotton also maintains its price here of 9 to 11 cts., although it has declined in other markets, and the accounts from Europe are very discouraging. The manufacturing interests generally in Great Britain and in this country are in a depressed condition. A diminished product of 600,000 bales cotton (compared with the preceding year) is sufficient to meet the greatly reduced demand. Great distress prevails in the large manufacturing districts of England; in this country the extreme cheapness of provisions prevents its being felt.

The price of tobacco declined in the early part of the month, but has recovered since the supply has fallen off, and ranges from $4 to $10. A decline in New Orleans, where a large stock had accumulated, was followed by sales in a short period of 10,000 hhds. at $3½ to $8½.

The wheat harvest is now in progress and commenced with favorable prospects as to quantity and quality, but the weather is now adverse.

The legislatures of the United States and of Great Britain have now before them measures deeply affecting all interests. The establishment of a national bank, the revision of the tariff, and the distribution of the proceeds of public lands, engage the attention of congress; while a change of the corn laws and a revision of the tariff are under discussion in parliament. The results are looked to with intense interest by all parties and all classes. Exchange on London 12 per cent., on New York 4 per cent. premium. X.

*June* 25, 1841.

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## SUMMARY OF NEWS.

*Saturday, May* 29, 1841.

The Caledonia steam-ship arrived at Boston on the 19th, in 14½ days from Liverpool, bringing accounts 14 days later, and up to the 4th inst.

Nothing had been heard of the President steam-ship; and it is almost certain now that it has been lost.

The British ministry had been defeated on two questions, in the House of Commons, on the Irish Voter's Bill. But instead of resigning, as usual in such cases, they have announced the making the repeal, or a great modification, of the corn-laws a cabinet measure. If the popularity of this reformation should save to the ministry their places, their success in this respect will produce very important benefits to American agriculture.

The London Chronicle (Radical) of the 3d instant, says:—

"The sensation produced by the Government notice of Friday night on the corn-laws is rapidly extending through the country. Every where it is the signal of excitement and determination. By the monopolists it will never be forgiven, and by the people it will never be forgotten. Ministers have fairly thrown themselves on the nation for support in the assertion of a great national right and interest. The response will soon be heard in a voice of thunder. The untaxing of the people's bread is a prospect full in view; and the people will spring toward it like lions on their prey."

The state of things in England seems to be, that the ministers, defeated in parliament, and despairing of holding their places without new and powerful support, have sought it by offering what the great mass of the common people so much want, the abolition of the corn monopoly, and the extension of free trade in general. After exciting such hopes, and such allies, the ministers can scarcely dare to draw back, or the landed proprietors and higher class to refuse consent to the proposed measures:

The revenue of the British government, as it appears from the report of the Chancellor of the Exchequer, recently made, shows a deficiency of £2,000,000. He indicated in his speech the intention of the ministry to lighten the protective duties on other commodities besides foreign grain.

"From the new *budget* [of France] it appears the deficiency unprovided for of the year 1840 amounts to 170,193,780f. That of 1841 to 242,603,288f. The budget of 1842, after the reductions made by the committee, amounting to 41,139,594f., would be calculated 1,275,453,340f., and the revenue being calculated at 1,160,000,000f., the deficiency would amount to 114,836,398f. To these deficiencies of the three years must be added a sum of 534,269,000f. demanded for extraordinary works of various kinds."

"Serious disturbances had broken out in various parts of Ireland, and the courts were busily engaged in the trials of the offenders."

The Tipperary papers contain accounts of outrages at Borrisokane, Kilruane, Bourna, Broka, Crimlin, Arderony, Liskahill and other districts of the county; such as threatening notices, intimidation, destroying property, assaults, and incendiarism; but in that quarter nothing more serious had occurred."

"General Don Antonio Quiroga, the leader of the Spanish insurrection in 1820, died suddenly at Santiago on the 26th of March."

"There is no later news from China. The arrangement of Capt. Elliot for the adjustment of the differences with the celestial empire were very unpopular

with the merchants interested in the East India and China trade, and they had remonstrated strongly against its ratification. A deputation had an interview with Lord Palmerston, on the 28th of April, upon the subject."

"The dispute of France with Morocco has been settled by mutual concessions. The Governor of Morocco has been dismissed, and the French Consul, M. de Laporte, has been recalled."

The war is still raging in Algeria, between the French and Arabs.

The New York Controller has advertised to sell at auction, (because of suspension or failures of the banks, the bonds and mortgages deposited with him as security for circulating notes by the following free banks:

Bank of America, at Buffalo.
United States Bank, do.
Merchants' Exchange Bank, at Buffalo.
Mechanics' Bank, at do.
Erie County Bank, at do.
Phenix Bank, at do.
Staten Island Bank, at Port Richmond.
Cattaraugus County Bank, at Randolph.
James Bank, at Jamesville.
Binghamton Bank, at Binghamton.
Bank of Lodi, at Lodi, Seneca county.
Bank of Olean, at Olean.

The President of the Frankfort Bank, Me. has been arrested on a charge of *swindling*. There will be an ugly time for bank *operations* when modern *financiering* comes to be called by the old-fashioned name of "*swindling*."

Some few weeks ago about two bushels of abolition papers arrived at the Petersburg post-office, from a northern abolition society, directed to various individuals. They were all stopped and burnt. Some months before that there had been a previous similar supply, and in as large quantity, which had met with the like fate.

All the four negroes charged with the recent murder and arson, at St. Louis, have been arrested, and also a white man, who is suspected of being accessory.

*Another negro stolen.*—On or about the 14th instant, a negro man, the property of Mr. Stubblefield, of Gloucester county, Va., was stolen and carried off by a New York vessel. The owner immediately set out by land for New York, with another gentleman, to identify his property.

The New-York Times says. "The *honorable* Asa Child, of Norwich, lately President of the Norwich and Worcester Rail-road Company, has absconded with about 40,000 dollars, obtained from that institution by peculation and forgery. He was last seen in Philadelphia *en route* it was supposed for Texas." He was formerly district attoney of the United States and was one of the late candidates for presidential elector.

The Frederick County Bank, (Md.,) was entered "by burglars," with a false key, between last Saturday night and Monday morning, and robbed of $185,976, of which $10,000 was in specie. This being much more than its whole original capital, the bank has suspended operations. From the *clear work* made, as well as from their manifest preference for *hard money*, we suspect that the "burglars" were some of those who had charge of the bank, or knew well the situation and contents of its vault. A reward of $10,000 (in *paper*, we suppose,) has been offered by the bank for the recovery of the money. *Query.* If the thief and the bank had kept their own counsel, and the robbery had remained a secret, why might not the bank have continued its operations just as well as before, and with as much benefit to the public, and *much more* to private interests? Under a *continual suspension* of specie payments, it matters not whether both the capital and the specie of a bank have been stolen or not.

The Danville (Va.) banking house was broken open a few nights ago, but the burglar was not able to get into the vault, and so stole nothing. *Ergo*, he was *not* a bank officer.

Two distressing events have recently occurred in Canada. A storm destroyed a number of rafts of timber on the St. Lawrence, and about 50 persons of their crews were drowned. A part of the Cliff of Cape Diamond, in Quebec, had slipped down, and crushed seven or eight houses, and killed 26 persons.

The whole number of persons on board the President were 136.

Three eminent lawyers, Messrs. Dallas, Hirst, and Ingersoll, having been consulted by request of a public meeting in Philadelphia, have severally given their opinions that the late "relief law" of Pennsylvania, in authorizing the issue of $3,000,000 in small bank notes, or *bills of credit*, is *unconstitutional*.

On May 7th, 220 Indians (all of whom except about 50 were women and children,) who had been captured, or had surrendered at various times, were shipped from Tampa to the Mississippi, for their new western home. Several chiefs and sundry other Indians had come in, and who had *promised* for all the others, on the condition of being paid the money *promised* by the government, to buy the chiefs' consent to emigrate. But as General Armistead could not show the cash, (the government being pretty much like the banks, *in a state of* "*suspension*,") and the Seminoles putting no trust in the "*credit system*," they have returned to their fastnesses, and recommenced the war of private murder. Several inhabitants, and a mail carrier, have been since killed, and the bloody work will now proceed as before. The troops are already very sickly. General Armistead has probably left Florida, on leave of absence, and is expected to pass through this town in a week, on his way homeward.

The bank of Chilicothe, after having lent $500,000 *in paper* to the state, and immediately *stopped specie payments*, as stated in our summary of the 8th inst. has since (as was then anticipated) shipped off a large amount of its specie for sale in New York. By this latter "fair business transaction," the bank will make a profit of 15 per cent. premium, that being the present difference of value between specie and its now discredited notes, in which the bank will pay its creditors.

Though specie is so deficient in this country, it is still sent abroad to countries that will not submit (as we do) to use the depreciated paper currency of swindling banks. $80,000 in specie went by the last packet from New York to England. As long as our banks continue to cheat and rob the community, by refusing to pay their debts, and by issuing and circulating their irredeemable and depreciated notes, so long *specie* must, of necessity, be exported, as long as any can be obtained to export.

*By this morning's mails, (May 29.)*

The brig Minstrel, from Ireland for Quebec, having on board 141 emigrant passengers, struck on Red Island Reef, and was lost, on the 18th instant. There were 152 persons on board, of whom 148 perished. Only four (of the crew) escaped.

The following banks of Pennsylvania have notified the governor of their acceptance of the "relief law:" The Harrisburg Bank, Exchange Bank of Pittsburg, Bank of Chambersburg, Carlisle Bank, Bank of Lewistown, Towanda Bank, Lancaster Bank, Farmers' Bank of Lancaster, and the Farmers and Mechanics' Bank of Philadelphia. The Bank of Pittsburg declines accepting.

*Saturday, June 5, 1841.*

We have heard that some of the bank men have had under consideration the propriety of answering the arguments and facts, presented in the Farmers' Register, which serve to expose the evils and iniquities of the paper system. We heartily wish they would make the attempt—but have not the least expectation of it. The banking wire-pullers and

their tools are indeed very daring in many respects—*but they will not dare to attempt to answer these charges, or to boldly face these attacks.* They will work indirectly—and they may perhaps succeed, in silencing and putting down our publication—but it will certainly not be attempted by fair and open argument. As sore as they are under the exposure, they prefer to submit silently to all the charges and denunciations we have uttered, or can utter, rather than attract still more notice from the public by attempting any defence. They are perfectly sensible that their case is one, which, according to the homely old proverb, "the more it is stirred, the more it will stink."

Accounts from Valparaiso state that Commodore Alexander Claxton, commanding the United States squadron in the Pacific, died at Talcahuana, on March 7th.

The Branch Bank of the State of Georgia, at Macon, has been *depredated* upon, (we are at a loss for a proper and acceptable term,) to the amount of about $60,000. The Savannah Republican says that "Nathaniel Barker, Cashier, Isaac G. Seymour, President, and Levi Eckley, H. K. Carter, and F. Sims, Directors, are the persons implicated. These frauds upon the institution have been committed under the obligations of an oath taken by the president and cashier of that office on the 3d of April, ult. after a certificate signed, saying the cash had on that day been counted and was all found correct."—This is bad enough, as an illustration of the corrupting influence of "bank facilities;" but what makes it worse, is that the Macon newspapers kept perfectly silent on the subject, and it was not until some time after the facts were matters of notoriety, and then upon a direct call for information, that a Savannah paper ventured to state the above facts!!!

The Augusta Chronicle of May 29th says—"Rumor was rife yesterday, founded upon the authority of private letters received in this city, that Macon has been the theatre of another bank robbery, which has just been detected in the Branch of the Central Rail-Road Bank, in Macon. The cashier is said to be the individual who has lined his pockets with the needful. We have not been able to learn the precise extent of the deficit in the cash account, but all seem to concur in the opinion, that it is quite large, probably twenty thousand dollars. A few more such disclosures, as these Macon exhibits, and Georgia will stand in the front rank of bank robberies. This is another of the curses of an inflated, irredeemable, non-specie-paying currency. The whole country becomes deranged with the mania for speculation and growing suddenly rich, and some of those who cannot obtain riches by fair means, steal whenever an opportunity presents."

The extra session of congress commenced on May 21st. There was a quorum in each house. Mr. White of Kentucky was chosen speaker of the House of Representatives. The message of President Tyler was received. Though it is not a very clear and open exposition of his present opinions and intended course, it seems to promise support to a law for a national bank, (*i. e.*, "fiscal agent,") whilst the *possibility* of such a bill being unconstitutional in purport is also stated. The distribution of proceeds of sales of the public lands among the states is recommended—and raising the tariff of duties, not however to contravene the design of the compromise act, "except under urgent circumstances" is proposed, to meet the expected deficit of the treasury—which is stated to be more than 11 millions for this year.

A numerous public meeting recently held in Charleston, S. C., among other resolutions adopted the following:—

"*Resolved*, That Congress having no authority under the Constitution to incorporate a National Bank, if such an institution be incorporated, we hold that the charter may, at any time, be repealed, and the bank abolished."

The National Theatre, in New York, was burnt on May 29th. It was done by an incendiary. It was burnt two years ago, and rebuilt. During the fire the falling of the walls crushed an adjacent house of ill fame, and killed one of its inmates.

James B. Glentworth's trial for enormous frauds practised in the New York election, is over, and he has escaped by a *hung* jury.

The "Ironsides Club" of Philadelphia have made a formal nomination of Commodore Stewart, as next President of the United States, which nomination the Commodore has formally accepted, and replied to in a published letter of considerable length. Twenty years ago, this whole matter would have been ridiculous in the extreme. But not so now.

The Baltimore American says—"The exportation of specie from this country to France goes on with unbroken steadiness, and is likely to continue while the present commercial relations between the two countries are permitted to exist." The Havre packet which sailed on Monday took out $125,000 in specie. The *true* reason is that we prefer to use depreciated bank notes instead of specie in this country, and therefore our specie is *sold* and sent from this country to others that will not use paper money, or to such extent. This will continue as long as there is any specie to export, or until the swindling banks are compelled to pay their notes and obligations. To New York, where the banks were *forced* to pay specie, it flowed from all non-specie paying states, until last autumn there was 12 millions of dollars in the city banks, and very much more than was wanted. As there was no *effective demand* for it in Virginia and the other paper currency states, it was profitable to send the specie abroad; and seven millions of dollars of the specie was sent to Europe from the city of New York before the end of last winter.

The Girard Bank and the Commercial Bank of Philadelphia have refused to accept the benefit of the relief law of Pennsylvania.

*By this morning's mails, June 5th.*

The British steam-packet Acadia arrived at Boston on the 2d, in 13½ days from Liverpool, bringing European accounts 15 days later. The Liverpool dates are to May 18th. "The news is not of much political importance, nor is there any thing very favorable in the aspect of the commercial and monetary interests. Nothing heard from the President steamer, and no hope of its escape remaining."

"The Spanish regency has been settled by the election (by the Cortes) of the Duke of Victory (Espartero) to be sole regent of the kingdom."

"The growing crops both in France and England wear the most favorable appearances."

Great dissatisfaction prevailed in England in regard to the recent arrangement of terms with China—which arrangement, according to last advices from China, is likely to fall through. Sir Henry Pottinger is to succeed Capt. Elliott as Commissioner to China, and is clothed with full powers. The treaty signed by Capt. Elliott and the Chinese Commissioner had been rejected by the Emperor of China. This intelligence had advanced the prices of teas in England 20 per cent.

Another horrible disaster has occurred at sea in the foundering of the ship William Brown, from Liverpool for Philadelphia. 47 lives were lost, of which 17 were of persons *thrown* out of the boat, in which all had taken refuge, to save the lives of the others. The survivors were taken up soon after by a ship, and carried to Havre-de-Grace. Though imprisoned at first, for the drowning of their companions, they were soon discharged, upon the ground of the absolute necessity of the act.

The discussion on the free-trade system proposed by the ministry was in "full blast" in the House of Commons. The first measure of reduction was the sugar duties, nominally, but in fact the whole question is in-

volved in the debate. The ministry had announced their proposed rate of duties on grain, which is quite low—8*s*. per quarter (or 8 bushels) on foreign wheat, 4*s*. per quarter on barley and other grains, including Indian corn, and 3*s*. 6*d*. on oats. The greatest interest is excited, and the great body of the people anxious for the proposed reduction. We feel sanguine as to the favorable result, which will be of immense value to this country, as well as to Great Britain.

The New York Courier and Enquirer (administration paper) of the 3d, says of the President's message —"It is due to candor to say that this document has given far more satisfaction to the opponents than to the friends of the administration in this city." Among the objections then stated at length, are, the want of explicitness as to a national bank—the intimation of a *possible* veto on a law for that object—the repudiation of increase to the duties in contravention to the compromise act—the not recommending some early mode of increasing the revenue—and the not mentioning a bankrupt law.

*Saturday, June* 12, 1841.

John Q. Adams has at last triumphed. He moved to rescind the 21st rule of the House of Representatives, which forbade the reception of abolition petitions—and his motion prevailed by a vote of 112 to 104. The vote was not divided so much by party as by geographical lines.

All the four negroes charged with the St. Louis murder and arson, have been tried and condemned to death.

Theatricals are in a bad way in New York. In our last was stated the burning of the National Theatre. The Bowery had been previously closed, through inability of the manager to pay the city tax: and since, the Park Theatre has been sold for $4,000 only.

Glentworth is to be tried again.

Some of the Philadelphia banks have been disappointed in a new effort to evade the law and cheat the public. This was by issuing "certificates" and "obligations" for $5 to take the place of the ordinary bank notes for $5, which the banks were required by law to pay for in specie. Both the Philadelphia Bank and the Farmers and Mechanics' Bank have been sued and cast upon their attempt to execute this new fraud of issuing and then refusing to pay these substituted "obligations."

Several of the country banks have accepted the provisions of the Revenue bill, and have already commenced the issue of small notes. Several of the city banks have rejected the provisions of this bill, and it is probable that the others will follow their example.

"From all the inquiries that we have made upon the subject, we think it very doubtful whether these bills will be able to maintain the credit of currency here at all. They are palpably at a depreciation of twenty to twenty-five per cent. and it is quite certain that, unless the city banks with one accord come to their relief and agree to receive them on deposite, and in all their transactions credit them as currency, they must fall into discredit. Now will the banks here, with any considerable unanimity, agree to thus credit them? We have some good reason for believing that they will not. Some have already declared that they will not, and, if they adhere to this determination, as we believe they will, they must adopt the only alternative left them—*resume specie payments in full for all their liabilities*. The insolvent and unsound institutions that hoped to live through the next five years by virtue of the Relief Law, at the expense of the sound and solvent banks, will find themselves greatly mistaken."—*Ph. Led.*

Benj. Higgins, master of the sloop Wellington, of Boston, is under trial in that city for kidnapping a negro man in Boston, and sending him to Newbern N. C. The facts are that the slave concealed himself on board the vessel, when it was in the port of Newbern, and was not discovered until far on the voyage. The captain kept the slave confined, to send him back to Newbern, and did so on the return of his vessel, it being a regular trader between Boston and Newbern. Thus, by his honest endeavor to escape the charge of kidnapping a slave in Newbern, he is charged by his countrymen with kidnapping a freeman (the same negro,) in Boston.

"Dr. Braddee, tried at Pittsburgh for robbing the mail, has been convicted, and is to be sentenced to the penitentiary. He is represented as a wealthy individual, who enjoyed a large and profitable business. Since the conviction of B., two of his gang, Strayer and Carman, have pleaded guilty."—*Phil. Led.*

The people of Cincinnati, have had the good sense to refuse to see Fanny Ellsler dance. It is the first town which she could not lay under a heavy contribution.

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their tools are indeed very daring in many respects—*but they will not dare to attempt to answer these charges, or to boldly face these attacks.* They will work indirectly—and they may perhaps succeed, in silencing and putting down our publication—but it will certainly not be attempted by fair and open argument. As sore as they are under the exposure, they prefer to submit silently to all the charges and denunciations we have uttered, or can utter, rather than attract still more notice from the public by attempting any defence. They are perfectly sensible that their case is one, which, according to the homely old proverb, "the more it is stirred, the more it will stink."

Accounts from Valparaiso state that Commodore Alexander Claxton, commanding the United States squadron in the Pacific, died at Talcahuana, on March 7th.

The Branch Bank of the State of Georgia, at Macon, has been *depredated* upon, (we are at a loss for a proper and acceptable term,) to the amount of about $60,000. The Savannah Republican says that "Nathaniel Barker, Cashier, Isaac G. Seymour, President, and Levi Eckley, H. K. Carter, and F. Sims, Directors, are the persons implicated. These frauds upon the institution have been committed under the obligations of an oath taken by the president and cashier of that office on the 3d of April, ult. after a certificate signed, saying the cash had on that day been counted and was all found correct."—This is bad enough, as an illustration of the corrupting influence of "bank facilities;" but what makes it worse, is that the Macon newspapers kept perfectly silent on the subject, and it was not until some time after the facts were matters of notoriety, and then upon a direct call for information, that a Savannah paper ventured to state the above facts!!!

The Augusta Chronicle of May 29th says—"Rumor was rife yesterday, founded upon the authority of private letters received in this city, that Macon has been the theatre of another bank robbery, which has just been detected in the Branch of the Central Rail-Road Bank, in Macon. The cashier is said to be the individual who has lined his pockets with the needful. We have not been able to learn the precise extent of the deficit in the cash account, but all seem to concur in the opinion, that it is quite large, probably twenty thousand dollars. A few more such disclosures, as these Macon exhibits, and Georgia will stand in the front rank of bank robberies. This is another of the curses of an inflated, irredeemable, non-specie-paying currency. The whole country becomes deranged with the mania for speculation and growing suddenly rich, and some of those who cannot obtain riches by fair means, steal whenever an opportunity presents."

The extra session of congress commenced on May 21st. There was a quorum in each house. Mr. White of Kentucky was chosen speaker of the House of Representatives. The message of President Tyler was received. Though it is not a very clear and open exposition of his present opinions and intended course, it seems to promise support to a law for a national bank, (*i. e.*, "fiscal agent,") whilst the *possibility* of such a bill being unconstitutional in purport is also stated. The distribution of proceeds of sales of the public lands among the states is recommended—and raising the tariff of duties, not however to contravene the design of the compromise act, "except under urgent circumstances" is proposed, to meet the expected deficit of the treasury—which is stated to be more than 11 millions for this year.

A numerous public meeting recently held in Charleston, S. C., among other resolutions adopted the following:—

"*Resolved*, That Congress having no authority under the Constitution to incorporate a National Bank, if such an institution be incorporated, we hold that the charter may, at any time, be repealed, and the bank abolished."

The National Theatre, in New York, was burnt on May 29th. It was done by an incendiary. It was burnt two years ago, and rebuilt. During the fire the falling of the walls crushed an adjacent house of ill fame, and killed one of its inmates.

James B. Glentworth's trial for enormous frauds practised in the New York election, is over, and he has escaped by a *hung* jury.

The "Ironsides Club" of Philadelphia have made a formal nomination of Commodore Stewart, as next President of the United States, which nomination the Commodore has formally accepted, and replied to in a published letter of considerable length. Twenty years ago, this whole matter would have been ridiculous in the extreme. But not so now.

The Baltimore American says—"The exportation of specie from this country to France goes on with unbroken steadiness, and is likely to continue while the present commercial relations between the two countries are permitted to exist." The Havre packet which sailed on Monday took out $125,000 in specie. The *true* reason is that we prefer to use depreciated bank notes instead of specie in this country, and therefore our specie is *sold* and sent from this country to others that will not use paper money, or to such extent. This will continue as long as there is any specie to export, or until the swindling banks are compelled to pay their notes and obligations. To New York, where the banks were *forced* to pay specie, it flowed from all non-specie paying states, until last autumn there was 12 millions of dollars in the city banks, and very much more than was wanted. As there was no *effective demand* for it in Virginia and the other paper currency states, it was profitable to send the specie abroad; and seven millions of dollars of the specie was sent to Europe from the city of New York before the end of last winter.

The Girard Bank and the Commercial Bank of Philadelphia have refused to accept the benefit of the relief law of Pennsylvania.

*By this morning's mails, June 5th.*

The British steam-packet Acadia arrived at Boston on the 2d, in 13½ days from Liverpool, bringing European accounts 15 days later. The Liverpool dates are to May 18th. "The news is not of much political importance, nor is there any thing very favorable in the aspect of the commercial and monetary interests. Nothing heard from the President steamer, and no hope of its escape remaining."

"The Spanish regency has been settled by the election (by the Cortes) of the Duke of Victory (Espartero) to be sole regent of the kingdom."

"The growing crops both in France and England wear the most favorable appearances."

Great dissatisfaction prevailed in England in regard to the recent arrangement of terms with China—which arrangement, according to last advices from China, is likely to fall through. Sir Henry Pottinger is to succeed Capt. Elliott as Commissioner to China, and is clothed with full powers. The treaty signed by Capt. Elliott and the Chinese Commissioner had been rejected by the Emperor of China. This intelligence had advanced the prices of teas in England 20 per cent.

Another horrible disaster has occurred at sea in the foundering of the ship William Brown, from Liverpool for Philadelphia. 47 lives were lost, of which 17 were of persons *thrown* out of the boat, in which all had taken refuge, to save the lives of the others. The survivors were taken up soon after by a ship, and carried to Havre-de-Grace. Though imprisoned at first, for the drowning of their companions, they were soon discharged, upon the ground of the absolute necessity of the act.

The discussion on the free-trade system proposed by the ministry was in "full blast" in the House of Commons. The first measure of reduction was the sugar duties, nominally, but in fact the whole question is in-

volved in the debate. The ministry had announced their proposed rate of duties on grain, which is quite low—8*s*. per quarter (or 8 bushels) on foreign wheat, 4*s*. per quarter on barley and other grains, including Indian corn, and 3*s*. 6*d*. on oats. The greatest interest is excited, and the great body of the people anxious for the proposed reduction. We feel sanguine as to the favorable result, which will be of immense value to this country, as well as to Great Britain.

The New York Courier and Enquirer (administration paper) of the 3d, says of the President's message —"It is due to candor to say that this document has given far more satisfaction to the opponents than to the friends of the administration in this city." Among the objections then stated at length, are, the want of explicitness as to a national bank—the intimation of a *possible* veto on a law for that object—the repudiation of increase to the duties in contravention to the compromise act—the not recommending some early mode of increasing the revenue—and the not mentioning a bankrupt law.

*Saturday, June* 12, 1841.

John Q. Adams has at last triumphed. He moved to rescind the 21st rule of the House of Representatives, which forbade the reception of abolition petitions—and his motion prevailed by a vote of 112 to 104. The vote was not divided so much by party as by geographical lines.

All the four negroes charged with the St. Louis murder and arson, have been tried and condemned to death.

Theatricals are in a bad way in New York. In our last was stated the burning of the National Theatre. The Bowery had been previously closed, through inability of the manager to pay the city tax: and since, the Park Theatre has been sold for $4,000 only.

Glentworth is to be tried again.

Some of the Philadelphia banks have been disappointed in a new effort to evade the law and cheat the public. This was by issuing "certificates" and "obligations" for $5 to take the place of the ordinary bank notes for $5, which the banks were required by law to pay for in specie. Both the Philadelphia Bank and the Farmers and Mechanics' Bank have been sued and cast upon their attempt to execute this new fraud of issuing and then refusing to pay these substituted "obligations."

Several of the country banks have accepted the provisions of the Revenue bill, and have already commenced the issue of small notes. Several of the city banks have rejected the provisions of this bill, and it is probable that the others will follow their example.

"From all the inquiries that we have made upon the subject, we think it very doubtful whether these bills will be able to maintain the credit of currency here at all. They are palpably at a depreciation of twenty to twenty-five per cent. and it is quite certain that, unless the city banks with one accord come to their relief and agree to receive them on deposite, and in all their transactions credit them as currency, they must fall into discredit. Now will the banks here, with any considerable unanimity, agree to thus credit them? We have some good reason for believing that they will not. Some have already declared that they will not, and, if they adhere to this determination, as we believe they will, they must adopt the only alternative left them—*resume specie payments in full for all their liabilities.* The insolvent and unsound institutions that hoped to live through the next five years by virtue of the Relief Law, at the expense of the sound and solvent banks, will find themselves greatly mistaken."—*Ph. Led.*

Benj. Higgins, master of the sloop Wellington, of Boston, is under trial in that city for kidnapping a negro man in Boston, and sending him to Newbern N. C. The facts are that the slave concealed himself on board the vessel, when it was in the port of Newbern, and was not discovered until far on the voyage. The captain kept the slave confined, to send him back to Newbern, and did so on the return of his vessel, it being a regular trader between Boston and Newbern. Thus, by his honest endeavor to escape the charge of kidnapping a slave in Newbern, he is charged by his countrymen with kidnapping a freeman (the same negro,) in Boston.

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because their legal authority is disregarded by the banks, and the judges have refused to grant an injunction in the worst case, that of the wholesale swindling Bank of Gallipolis. "Many of the banks are issuing one-dollar notes in open violation of law, and several corporations and towns have thrown out their shinplasters."

Of the fifty banking institutions of Pennsylvania, twenty-six have accepted the benefit of the late relief law, and six have rejected it. The decisions of the others have not yet been heard.

*By this morning's mail.*

Capt. W. G. B. Taylor, boarding officer, Balize, has captured and brought in a schooner, whose piratical character and designs were evident from her armament, flag and papers. The crew were brought in ironed. This statement is abridged from Capt. Taylor's full report to the collector of New Orleans.

No arrival from Europe at New York, to the 10th.

Three other banks (making 9 now heard from) have refused to accept the benefit of the Pennsylvania "relief law." These are the banks of Doylestown, Easton, and Kensington. The expectation of early resumption of payment by the *solvent* banks of Philadelphia is increased.

The steamer *Maid of Orleans*, with a cargo of lead, sunk at Hat Island in the Mississippi. The loss was expected to be total.—*Louisville Adv. of 5th.*

The Steamer Duncan McRae, on her trip up the Savannah River, was blown up four miles below Johnson's Landing, and sunk in 10 minutes. Two firemen badly injured. The cargo nearly a total loss.—*Ch. Courier.*

*Saturday, June* 19, 1841.

The Great Western steam-ship arrived at New York on the 10th, in 14 days from Bristol, bringing London dates to 26th ult., and seven days later than previous accounts. No news of interest, except the defeat of the ministry by a majority of 36 votes in the House of Commons, on the sugar duty bill—the first of the series of the proposed free trade measures. The ministers expect better success in regard to the corn laws, which they then brought up for repeal. If defeated there also, they have announced the intention of dissolving parliament, and appealing to the people by a new election. In the mean time, Sir Robert Peel has given notice of his intention to move that the ministers do not possess the confidence of parliament, and "that their continuance in office, under such circumstances, is at variance with the constitution."

"An utter stagnation is now rapidly creeping over every branch of industry, whether manufacturing or commercial, and whether in town or country. All kinds of testimony agree that in this, ordinarily the liveliest period of the year, there never was experienced in the memory of man so general and complete a paralyzation of trade."—*Lond. Paper, May* 25.

From the great dissatisfaction existing in regard to the late negotiations with the Chinese, we expect that, upon the arrival of the new British commander, there will be a course of prompt and vigorous procedure commenced, which must cause a renewal of the war, and lead to results of great importance to the contending nations, and to the commercial world.

Each of the two editors of the New York American and the Courier and Enquirer has published his claim that General Harrison had promised to make him postmaster of New York. It seems that these conflicting assertions and claims are to be settled by President Tyler refusing to give this post-office to either of the competitors. This decision will be applauded by all honest and disinterested men. The newspaper press (of both high and low degree) is sufficiently exposed to corrupting influences, without adding thereto the rewards of rich government offices, for partizan electioneering services.

The notorious Seminole marauder Coachoochee, or Wild Cat, with 15 other warriors, 3 negroes, and a boy, have been captured by Major Childs, and shipped off for the west.

The Grand Jury of Boston refused to indict B. Higgins, the mate of the Wellington, charged with kidnapping (as stated in our last.) Their decision has caused great excitement amongst the abolitionists in Boston.

The Secretary of the Treasury has submitted to Congress his plan of a National Bank. Our limits do not permit presenting its features. There will be yet much disputation as to the details of this measure, and possibly a failure of the bill on that ground.

The repeal of the anti-abolition (21st) rule of the House of Representatives is under reconsideration, by a vote of 106 to 104, and the house is disposed to be very disorderly thereon. This session, so far, promises to be any thing but quiet, orderly, or business-like. Fifteen days have passed, and the rules of the lower-house have not been yet adopted.

A British cruiser, the Termagant, attacked a Spanish slaver on the coast of Africa, and was beaten off with some loss.

The master of a British merchantman has been fined $273, by the court of Liberia, for trading with the natives within the limits of the colony. He claimed to be authorized by his government, to which he will appeal.

A letter from New Orleans, to the National Intelligencer, dated 6th inst. says that the ship Charles, which sailed a few days before for Havre, France, was fallen in with about 40 miles from the mouth of the Mississippi, with sails set, but no one on board. There were fresh traces of blood, and other reasons to believe that either pirates had captured the ship, or more probably that the crew had murdered the passengers, 13 in number of whom 6 were ladies, and robbed and abandoned the ship. The passengers had, as was supposed, $100,000 in specie. Several expeditions had started from New Orleans, to cruise in pursuit of the murderers; and great excitement had been produced by this mysterious and horrible event. The passengers were mostly inhabitants of New Orleans. Up to the 9th inst. nothing had been ascertained, though more than 20 persons of suspicious character had been arrested and were in confinement. The crew of the piratical vessel recently captured off the Balize, were supposed to be concerned in this act.

From the National Intelligencer of the 17th it appears that, after 17 days of squabbling and disorder, the House of Representatives has been finally organized. The 21st (anti-abolition) rule, and its repeal, are to remain in suspense until the regular session, then to be discussed and settled, *if possible*. All the other former rules of the house were adopted—and the members may now proceed to wrangle about something else.

"A few weeks ago, the court was to sit in Helena, (La.,) to grant judgment to the banks, which had sued extensively; but the people met, closed the door of the court-house, and refused to admit either judge, jury, or sheriff. The judge was about to hold the court in another building, but soon learned that the sheriff had resigned, and no court could be held."—*(La. Adv.)* This lawless course is unjustifiable and abominable; but what else can be expected, when the law, as in Louisiana and Virginia, relieves the banks from all obligations to pay *their* debts, than that those who owe the banks should consider it justifiable to "suspend payment" of their debts likewise? Outrageous and unjustifiable as is such violation of law, and of honesty, by their debtors, the *banks* have no right to complain, that their own dishonest and illegal course is thus imitated, and opposed to their own refusal to pay what they owe.

Willis Gaylord Clarke, the printer, poet, and late edi-

tor of the Philadelphia Gazette, died on the 12th inst. aged 32.

The notorious Dr. Eldridge, who was charged with having swindled different banks so largely, and who has been so long under trial in Philadelphia, was discharged on his own recognizance to appear, in the sum of $1,000. No jury could agree as to his guilt.

An absconding female slave, belonging to Dr. Shields of Maryland, having been legally arrested in Lancaster, Pa., and when in charge of Mr. Grabill, brother-in-law of the owner, and two of the police, was forcibly rescued by a party of negroes. All the three men above named were much hurt in the fight with the assailants, and one of the attacking party was shot by one of the police, and is reported since to be dead.

The scheme for a national bank, submitted by the Secretary of the Treasury, is strongly denounced by some of the leading papers of the administration party. The New York Courier and Enquirer says it has caused universal disappointment.

Prices of exchange, or discount, at New York on the 15th—

| | | | |
|---|---|---|---|
| On Philadelphia, | 3½ a 3¾ | On Augusta, | 6* a 15† |
| Baltimore, | 3¼ a 3½ | Mobile, | 10 a — |
| Richmond, | 4¼ a 4½ | New Orleans, | 7¼ a — |
| Charleston, | 1¼ a 1½ | N. Carolina, | — a 5 |
| Savannah, | 3¼ a — | Cincinnati, | 9 a 9¼ |
| | | Louisville, | 8¾ a — |

*Augusta funds. † R. R. funds.

"The suit recently instituted against Nicholas Biddle by the United States Bank is to recover nearly seven hundred thousand dollars, paid out during his administration, for which no vouchers can be found; of which sum more than four hundred thousand dollars, it is asserted, were paid to him, for purposes unknown, upon the checks of the Cashier.—*Phi. Led.*

The Richmond banks have given notice that after July 1, they will not receive any notes of the Wheeling banks. This is because the Wheeling notes are something worse in market, or in depreciation, than their own.

*Saturday, June* 26, 1841.

The supposed piracy on the ship Charles, stated last week, turns out to have been a voluntary abandonment of the ship by the crew and passengers, on account of its leaking. The passengers had proceeded to France in the ship Louis XIV, and the captain and crew came in another vessel to Charleston, S. C., where the case was judicially examined, and ample proof of the absence of all criminality furnished. Still it is strange that the leak which caused such a panic should have become less; and, also, that, when leaving the ship, no note was left by the master to explain the cause, to any persons who might visit the wreck.

The steamer Columbia, Captain Judkins, arrived at Boston about 9 o'clock on Wednesday afternoon, (June 16th,) in the unprecedentedly short passage of twelve days and five hours from Liverpool. She brings papers from that city to the 4th inst., and London to the evening of the 3d, bringing news 8 days later.

The news from Canton (to April 1st) is important, and authentic. In consequence of the refusal of the emperor to ratify the previous convention, hostilities had been renewed by the British, the Bogue forts attached and carried, and the factories taken possession of, which position gives the entire command of the great city of Canton, and subjects it to be burnt at any hour. The British lost not a man in the affair, and had killed between 200 and 300 of the Chinese, and taken 1300 prisoners. The British commander has proclaimed a suspension of hostilities with the city, until the intended procedure of the Chinese authorities is known, and has opened the trade. This affair is ominous of a complete prostration of the Chinese to British power. The Canton Press says, that "every thing wears the appearance of a protracted war." This news from Canton advanced teas 2d. a 3d. per lb. The general appearance of the crops in Europe indicated favorable harvests.

Hostilities had been recommenced by the Russians, on an extensive scale of preparation, with the Circassians. The first affair was sanguinary, and the Russian Major General, Backurim, was killed.

The difference which lately arose between the Ottoman and Persian governments has been amicably settled.

The insurgents of Candia had received reinforcements from Greece, and were gaining ground. The insurrection in Bulgaria had been quelled.

Sir Robert Peel's resolution (of want of confidence in the ministry,) was still under debate in the House of Commons.

The state of trade in Great Britain was bad beyond precedent. All branches of industry were languishing. Some of the cotton mills in Scotland were beginning to work but part of the time. The price of cotton had fallen, and the market was very dull. The prospect of the repeal of the corn-laws had put the nation in a ferment. The dissolution of parliament is expected soon.

A new system has commenced of importing *free* natives of Africa to the British West Indies as hired laborers. Two vessels bringing 267 of these emigrants have arrived at Jamaica. This fact is one of the most striking proofs that the emancipated slaves are not to be relied on as hired laborers, or these new and barbarous substitutes would not be required.

An attempt was lately made, at Apalachicola, Fl., by persons on board a New York vessel, to carry off four or five slaves, whom they had persuaded to abscond. The scheme was discovered and the slaves stopped, but the vessel and the practical abolitionists escaped.—*Tallahassee Star.*

Only thirty-five of the fifty banks of Pennsylvania have accepted the benefit of the relief law; and their proportions of the loan to the state, under that law, (to be issued in small notes,) will fall short of the whole amount expected, by $1,409.072.

Samuel Wright, a merchant of New Orleans, had written letters to the Vicksburg Sentinel, in which he boldly and truly exposed the frauds of sundry of the speculators, banking financiers, and great cotton dealers, practised on the planters and the community. A conspiracy was formed among the exposed swindlers to put down Mr. Wright. The first attempt was to expel him from the Commercial Reading Room, and thus to injure his reputation. This failed; for even among this mercantile body, he was sustained by a majority. He was then challenged, by a merchant named Oakey, and shot dead in the duel. Mr. Wright has been murdered for telling the truth, and exposing fraud and villany: but his assassination will serve the cause that he died for, even better than his published arguments and facts. The editor of the Vicksburg Sentinel says of his bold associate in the war against banking and commercial swindlers, that Mr. Wright "fell literally among a band of felons, a martyr to justice, truth and honor." It is easier for such felons to proscribe and even murder their few opponents than to refute their arguments, or deny their charges.

The House of Representatives have passed an act appropriating $25,000 to the widow of Gen. Harrison. The vote was 122 to 66.

Rail Roads.—There are now wanting only two or three links to complete the long line of rail road from Maine to North Carolina—24 miles between Hartford and Springfield, and 50 miles from New Haven to the state line of New York, making one entire line from Buffalo on the west, and Portland on the east, to the city of Washington—in length over 1000 miles! When this is completed, we will have an iron line from the east to the west, north to south and southwest, of continued lines, with the exception of about

50 miles from Washington to Fredericksburg, Va., of nearly 2000 miles.—*South. Recorder.*

The death of M. Niemcewiez, the distinguished Pole, who was for many years a resident at Elizabethtown, N. J., and whose name is alike dear to freedom and literature in both hemispheres, is announced in the Journal des Debats of Paris. He was 84 years old at the time of his death.

There arrived at the port of New York, on the 22d and 23d inst., 1389 steerage passengers.

"We learn, (says the N. Y. Herald of the 23d inst.) by a private letter received yesterday from Lima, that about the first of April an important battle was fought between the government forces and the revolutionary party. The action took place near Arequipa, and at first the latter party, under the supreme command of Vivanco, was victorious, but the government troops under Gamarra finally triumphed."

Campeachy papers to 17th ult. have been received at N. Orleans. The cultivation of tobacco, which formerly was subject to taxation, is hereafter to be free. The port of Bacalar has been opened to foreign commerce. The State of Yucatan has definitively declared its absolute separation from the Republic of Mexico. On the 16th of May, the new constitution, decreed by the legislature, was published at Merida, the capital of the state. The Mexican flag was taken down by the populace, torn into pieces, and its place supplied by other colors. The liberty of worship is declared by the constitution. To strangers every possible guaranty is promised. The new government is about to send messengers to Washington and Europe, for the purpose of being recognized as an independent state. Don Francisco Riebaud has been called to Yucatan, and placed in the charge and direction of the navy. Many other distinguished men have been recalled.

"RELIEF LAWS.—It appears that a system of banking has been tried in Mississippi similar to that of the relief law of the last session of our Pennsylvania legislature—that is, a founding issues on state stocks, and expecting them to remain in good credit without the aid of specie payments. This system, being in opposition to the fixed laws of nature, failed of course.

"The Union Bank of Mississippi was established upon an issue of state stock, of which it received five millions, and issued its own notes upon the faith of the capital so obtained. The bank was to have paid the interest on this stock, but it has neglected to do so, and the people are now called upon to pay it.

"In the mean time the officers of the bank are too wise to take their own pay in the stuff which they have put off to others, and the cashier is now endeavoring to obtain a loan of $25,000 in cash upon the pledge of the notes of the bank, the money being wanted to pay the bank expenses.

"It is to be hoped that a few more such experiments will convince our legislators that the best relief bill is one that requires the banks to comply strictly with their engagements, and the best monetary "*regulator*" is a bankrupt law, which shall wind up the affairs of every bank which may suspend payment for thirty days in succession."—*Pennsylvanian.*

THE PRESIDENT.—The insurance company of New York, that underwrote the cargo of the President, have paid the full amount of the loss—conclusive evidence of what they think of her fate.

The Jackson Mississippian, of the 4th inst., says that Governor McNutt has received official information that the state has been protested for interest due on a portion of the Union Bank bonds.

The Doric, at New Orleans, from Tampico, brought upwards of $36,000 in specie, and the Creole, at the same port from Matamoras, brought upwards of $50,000,

The committee in the United States Senate having in charge the subject matter of the Finances and a National Bank, it is said will extend the limit of the rate of dividends to 7 per cent.

Nothing had been heard at the latest dates of the robbers of the Frederick County Bank.

An injunction was placed on the Bank of Michigan on the 11th inst., and a receiver was to be appointed.

The Great Western took out only about $5000 in specie, and not a very large amount of bills.

The recent census shows that there is one insane person for every 990 inhabitants.

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